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2008

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MONEY OR NOTHING: THE ADVERSE ENVIRONMENTAL CONSEQUENCES OF UNCOMPENSATED LAND USE CONTROLS

JONATHAN H. ADLER*

Abstract: The conventional wisdom holds that requiring compensation for environmental land use controls would severely limit environmental protection efforts. There are increasing reasons to question this assumption. Both economic theory and recent empirical research—focused primarily on the Endangered Species Act but potentially applicable to other environmental regulations that create similar incentives—demonstrate that failing to compensate private landowners for the costs of regulation discourages voluntary conservation efforts and can encourage the destruction of environmental resources. The lack of a compensation requirement also means that land use regulation is “underpriced” as compared to other environmental protection measures for which government agencies must pay. This results in the “overconsumption” of land use regulations relative to other environmental protection measures that could be more cost-effective at advancing conservation goals. Although any specific compensation proposal would present implementation questions, there are reasons to believe that a compensation requirement could improve environmental conservation efforts.

INTRODUCTION

Private land is indispensable to environmental conservation. Most land—approximately two-thirds of the continental United States—is privately owned.¹ The relative importance of such lands for the maintenance of species habitat and critical ecological functions is perhaps

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¹ U.S. DEP’T AGRIC., MAJOR USES OF LAND IN THE UNITED STATES 35 (2002).

even greater. A significant majority of those species currently listed as threatened or endangered under the Endangered Species Act (the "ESA")² rely upon private land for some or all of their habitat.³ Most wetlands are in private hands as well.⁴ For a variety of reasons, private land is also, on average, more productive for both economic and ecological purposes.⁵ Without conservation on private lands, meaningful ecological conservation cannot be achieved.⁶

Recognizing private land's importance for the achievement of environmental goals, federal, state, and local governments maintain extensive regulations on private land use. Such regulations typically limit or constrain development and other productive land uses, and can have a significant effect on land values.⁷ So long as a given regulation, by itself, does not cause a "total wipeout," however, a landowner

² 16 U.S.C. §§ 1531–1544 (2000 & Supp. IV 2004).

³ U.S. GEN. ACCOUNTING OFFICE, ENDANGERED SPECIES ACT: INFORMATION ON SPECIES PROTECTION ON NONFEDERAL LANDS 4 (1994); *see also* J. BISHOP GREWELL & CLAY J. LANDRY, ECOLOGICAL AGRARIAN: AGRICULTURE'S FIRST EVOLUTION IN 10,000 YEARS 92 (2003) ("Three-quarters of the wildlife in the U.S. live on farm and ranch lands."); Jodi Hilty & Adina M. Merenlender, *Studying Biodiversity on Private Lands*, 17 CONSERVATION BIOLOGY 132, 133 (2003) (noting that ninety-five percent of endangered plant and animal species have some habitat on private land); Erin Morrow, *The Environmental Front: Cultural Warfare in the West*, 25 J. LAND RESOURCES & ENVTL. L. 183, 184 (2005) ("Private lands are essential to species recovery . . ."); Barton H. Thompson, Jr., *Conservation Options: Toward a Greater Private Role*, 21 VA. ENVTL. L.J. 245, 249 (2002) (noting that "much of the key riparian land in the West is in private hands" and that "[s]ome valuable ecosystems today are found only on private lands"); David S. Wilcove & Joon Lee, *Using Economic and Regulatory Incentives to Restore Endangered Species: Lessons Learned from Three New Programs*, 18 CONSERVATION BIOLOGY 639, 640 (2004) (noting that an estimate that "private lands harbor at least one population of two-thirds of all federally listed species . . . is almost certainly an underestimate").

⁴ Jon Kusler, *Wetland Delineation: An Issue of Science or Politics?*, ENVIRONMENT, Mar. 1992, at 6, 29 (stating that approximately three-fourths of wetlands are on private land).

⁵ *See* Hilty & Merenlender, *supra* note 3, at 133 ("Although there are exceptions, private lands tend to be more productive, better watered, and higher in soil quality than public land." (citing J. Michael Scott et al., *Nature Reserves: Do They Capture the Full Range of America's Biodiversity?*, 11 ECOLOGICAL APPLICATIONS 999, 999 (2001))).

⁶ Stephen Polasky & Holly Doremus, *When the Truth Hurts: Endangered Species Policy on Private Land with Imperfect Information*, 35 J. ENVTL. ECON. & MGMT. 22, 22 (1998) ("Any effective species preservation policy will require conservation on private land."); John F. Turner & Jason C. Rylander, *The Private Lands Challenge: Integrating Biodiversity Conservation and Private Property*, in PRIVATE PROPERTY AND THE ENDANGERED SPECIES ACT: SAVING HABITATS, PROTECTING HOMES 92, 116 (Jason F. Shogren ed., 1998) ("No strategy to preserve the nation's overall biodiversity can hope to succeed without the willing participation of private landowners.").

⁷ Geoffrey K. Turnbull, *The Investment Incentive Effects of Land Use Regulations*, 31 J. REAL EST. FIN. & ECON. 357, 365 (2005) ("[T]he consequence of [land use] regulation is typically evident in the form of diminished property value.").

is unlikely to be compensated for her loss.⁸ Only occasionally do federal courts require government agencies to compensate landowners for the costs of environmental land use controls.⁹

It is generally assumed that a compensation requirement would undermine environmental conservation efforts.¹⁰ There are reasons to question this assumption. A compensation requirement might alter the scope of federal regulatory limitations on private land use. Nonetheless, compensation need not come at the expense of environmental conservation.¹¹ Requiring government compensation for environmental land use regulations could actually be beneficial. Whether or not compensation is constitutionally required, as some argue, a compensation requirement could increase the quantity and improve the quality of private land conservation.¹²

Government agencies cannot be relied upon to provide the optimal level of conservation on their own.¹³ It is critical that government policy not inhibit nongovernmental conservation efforts, many of them undertaken by individual landowners.¹⁴ Yet existing environmental land use controls have precisely this effect. Economic theory predicts, and recent empirical research on the ESA demonstrates, that failing to compensate private landowners for the costs of federal land use con-

⁸ See *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1015–16 (1992) (holding that a taking occurs when a “regulation denies all economically beneficial or productive use of land”).

⁹ See Ira Michael Heyman, *Property Rights and the Endangered Species Act: A Renascent Assault on Land Use Regulation*, 25 PAC. L.J. 157, 162 (1994) (noting that “not one successful taking claim under the [Endangered Species] Act has been prosecuted in any Federal Court”). But see *Tulare Lake Basin Water Storage Dist. v. United States*, 49 Fed. Cl. 313, 319–20 (Fed. Cl. 2001) (water use restrictions imposed under ESA constituted taking requiring compensation under the Fifth Amendment). In the 1990s, Congress considered measures to require broader compensation under federal environmental laws, but such measures were not enacted. See S. 605, 104th Cong. (1995); H.R. 925, 104th Cong. (1995). Various property rights measures have passed in state legislatures and by ballot initiative, however. See Private Property Rights Protection Act, ARIZ. REV. STAT. ANN. § 12-1134 (2007) (Arizona law approved by voters in November 2006 providing for compensation or waiver of state or local land use regulations that reduce the fair market value of real property); OR. REV. STAT. § 195.300–.366 (2007) (Oregon law providing similar, but more limited, relief); Nancie G. Marzulla, *Private Property Initiatives as a Response to “Environmental Takings,”* 46 S. CAL. L. REV. 613, 633–38 (1995) (discussing passage of state-level property rights initiatives and legislation); Steven J. Eagle, *The Birth of the Property Rights Movement*, POL’Y ANALYSIS, Dec. 15, 2005, 28–30 (same).

¹⁰ See *infra* notes 57–70 and accompanying text.

¹¹ See *infra* notes 337–413 and accompanying text.

¹² See *infra* notes 337–413 and accompanying text.

¹³ See Thompson, *supra* note 3, at 255–56.

¹⁴ *Id.*

trols discourages voluntary conservation efforts and can encourage the destruction of environmental resources on private land.¹⁵ Uncompensated environmental land use controls cause many landowners to view environmental protection as a burdensome or hostile enterprise.¹⁶ At the same time, failing to require compensation means that land use regulation is "underpriced" as compared to other environmental protection measures for which government agencies must pay. This results in the "overconsumption" of land use regulations relative to other environmental protection measures and less effective environmental policies.¹⁷ Taken together, these effects suggest that *uncompensated* regulatory takings¹⁸ are themselves a threat to greater environmental protection.¹⁹

This Article makes the *environmental* case for compensating landowners when environmental conservation measures restrict their ability to make productive use of their land. Part I provides an overview of the current debate over compensating landowners for the costs of environmental land use controls.²⁰ This debate has persisted since the onset of environmental land use regulation, the so-called "quiet revolution in land-use control,"²¹ that began in the 1960s. As a general matter, environmental activists and supporters of such regulations have opposed compensation as cumbersome and unnecessary, whereas property rights activists and opponents of government land use controls have demanded compensation as a matter of economic efficiency and distributive justice. Both camps, however, have generally accepted that a compensation requirement would come at the expense of environmental protections. This Article challenges that assumption.

¹⁵ See *infra* notes 87–206 and accompanying text.

¹⁶ See *infra* notes 87–206 and accompanying text.

¹⁷ See *infra* notes 255–305 and accompanying text.

¹⁸ The Fifth Amendment requires compensation for "regulatory takings," as they have been defined by the U.S. Supreme Court. See U.S. CONST. amend. V; *Lingle v. Chevron U.S.A., Inc.*, 544 U.S. 528, 536 (2005); *Lucas*, 505 U.S. at 1015–16, 1031–32. This Article uses the term "regulatory takings" in its more colloquial sense, to describe regulation that diminishes the fair market value of real property due to restrictions on traditional land uses. It is worth emphasizing that this Article does not seek to answer the question of when, if ever, compensation is constitutionally required under the Fifth Amendment, or whether such a requirement should be enforced in federal courts.

¹⁹ The argument in this Article is not meant to discount the potential negative environmental consequences of even compensated takings of private land. In at least some contexts, the use of eminent domain can be expected to produce negative environmental consequences as well. See Ilya Somin & Jonathan H. Adler, *The Green Costs of Kelo: Economic Development Takings and Environmental Protection*, 84 WASH. U. L. REV. 623, 623 (2006).

²⁰ See *infra* notes 37–70 and accompanying text.

²¹ See FRED BOSSELMAN & DAVID CALLIES, *THE QUIET REVOLUTION IN LAND USE CONTROL* 1–4 (1971).

Part II explains how uncompensated regulatory takings, such as those that result from environmental land use controls intended to conserve species habitat or other ecological values, create perverse, anti-environmental incentives for private landowners.²² This Part explains the theoretical reasons why these incentives can be expected to result in the loss of species habitat and other ecological services on private land.²³ It also surveys recent empirical studies examining the conservation consequences of uncompensated land use controls under the ESA—studies that have been largely ignored within the environmental law literature to date.²⁴ It further explains how the imposition of land use regulations for conservation purposes can compromise efforts to collect scientific information about the status of ecological values on private lands, further undermining conservation goals.²⁵

Part III examines the incentives faced by government agencies engaged in environmental conservation efforts.²⁶ Specifically, this Part demonstrates that government agencies face perverse incentives of their own when they do not have to provide landowners with compensation for the costs of complying with land use controls barring development on private lands.²⁷ Insofar as private land uses are treated as “free goods” in this fashion, regulatory agencies can suffer from “fiscal illusion,” and have an increased incentive to rely upon land use controls, even when other conservation measures would be more cost-effective. As a result, the lack of compensation may encourage regulatory agencies to adopt suboptimal conservation strategies.

Part IV makes the case for a compensation requirement that would help ameliorate the perverse incentives that plague current conservation efforts.²⁸ Paying compensation would reduce landowner opposition to environmental protection measures, alter the political incentives faced by agencies, and potentially reduce some of the political incentives that further distort conservation policy on the margin.²⁹

Adopting a compensation requirement is not a simple step, however. Attention would have to be paid to how such a requirement could best be implemented, given existing environmental statutes and pro-

²² See *infra* notes 71–243 and accompanying text.

²³ See *infra* notes 87–114 and accompanying text.

²⁴ See *infra* notes 159–206 and accompanying text.

²⁵ See *infra* notes 207–225 and accompanying text.

²⁶ See *infra* notes 244–336 and accompanying text.

²⁷ See *infra* notes 255–305 and accompanying text.

²⁸ See *infra* notes 337–413 and accompanying text.

²⁹ See *infra* notes 337–413 and accompanying text.

grams, without creating additional perverse incentives. Part IV addresses some of these concerns before offering some concluding thoughts.³⁰

Two qualifications are in order. First, this Article accepts the general presumption in environmental policy that current conservation efforts, private and public combined, under-provide environmental amenities.³¹ The Article explains how the imposition of land use controls—specifically requirements that owners refrain from altering or making economically productive use of the land—without compensating the landowners for the consequences of such restrictions, can result in less cost-effective environmental conservation programs and a net reduction in the quality and quantity of environmental conservation.³² Although other economic and equity concerns are important, they are beyond the scope of this paper.

Second, this Article focuses on conservation-oriented land use regulations, as opposed to pollution controls. The focus of analysis is those government regulations that prohibit development and other activities that change the environmental amenities provided by a given parcel of land, rather than on those regulations that seek to prevent landowners from imposing pollution or other harms on neighboring properties.³³ For instance, none of the sorts of activities prohibited as unlawful habitat modification under section 9 of the ESA would come close to constituting a common law nuisance.³⁴ Although some activities regulated under section 404 of the Clean Water Act (the “CWA”)

³⁰ See *infra* notes 337–416 and accompanying text.

³¹ See, e.g., William W. Buzbee, *Recognizing the Regulatory Commons: A Theory of Regulatory Gaps*, 89 IOWA L. REV. 1, 44–48 (2003) (arguing that a “regulatory commons” results in underregulation of environmental problems); John D. Echeverria, *Regulating Versus Paying Landowners to Protect the Environment*, 26 J. LAND RESOURCES & ENVTL. L. 1, 15 (2005).

³² See *infra* notes 71–336 and accompanying text. On the other hand, if one believes that the optimal level of environmental conservation is less than that currently provided, then one may conclude that a compensation requirement may produce greater conservation, and that this could be less efficient.

³³ It is of course true that some, if not all, environmental harms are “reciprocal,” insofar as they involve competing land uses. See R.H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1, 2 (1960). Yet this economic insight is at odds with widespread contemporary understandings of what constitutes harmful conduct.

³⁴ See Richard A. Epstein, *Babbitt v. Sweet Home Chapters of Oregon: The Law and Economics of Habitat Preservation*, 5 SUP. CT. ECON. REV. 1, 13 (1997). But see Christine A. Klein, *The New Nuisance: An Antidote to Wetland Loss, Sprawl, and Global Warming*, 48 B.C. L. REV. 1155, 1211 (1997) (noting that lower courts are increasingly recognizing the value of wetlands and at least one court has found that wetlands destruction constitutes an affirmative nuisance).

could constitute nuisances in certain circumstances,³⁵ the filling of wetlands, as such, would not. Indeed, as Professor Richard Epstein explains, "It would take a stunning reversal of hundreds of years of legal history if these activities, generally productive, were now, for the first time, castigated by the common law as generally harmful."³⁶ This Article does not consider—let alone endorse—a compensation requirement for regulations that control the imposition of pollution or other external effects onto neighboring properties or the public at large. Such a requirement would likely have quite different, and substantially more negative, environmental effects than the compensation requirement considered here.

I. MONEY FOR SOMETHING?—THE COMPENSATION DEBATE

Whether to compensate landowners subject to environmental land use controls for resulting economic losses has been debated since such regulations were first adopted. In the 1960s, there was a "quiet revolution in land-use control" as state and local governments began adopting a new generation of environmental protections aimed at encouraging or requiring conservation on private lands.³⁷ Extending beyond the traditional bounds of urban zoning, and imposing greater limits on private land use than the common law principles of nuisance, these new measures limited land development in order to preserve environmental values. A presidentially appointed task force on land use summarized the dominant ecological thinking in 1973: "tough restrictions will have to be placed on the use of privately owned land" in order to protect critical environmental resources.³⁸

As environmental land use controls were adopted, conservationists became concerned some measures could run afoul of the Fifth Amendment requirement that governments compensate landowners when private land is taken for public use.³⁹ "Almost every state and local government that is trying to implement an environmentally-oriented land

³⁵ See generally J.B. Ruhl, *Making Nuisance Ecological*, 58 CASE W. RES. L. REV. (forthcoming 2008).

³⁶ Epstein, *supra* note 34, at 29; see also James L. Huffman, *Beware of Greens in Praise of the Common Law*, 58 CASE W. RES. L. REV. (forthcoming 2008).

³⁷ See BOSSELMAN & CALLIES, *supra* note 21, at 1–4. This history is briefly summarized in Jonathan H. Adler, *Back to the Future of Conservation: Changing Perceptions of Property Rights & Environmental Protection*, 1 N.Y.U. J.L. & LIBERTY 987, 992–1001 (2005).

³⁸ THE USE OF LAND: A CITIZEN'S POLICY GUIDE TO URBAN GROWTH 23 (William K. Reilly ed., 1973).

³⁹ U.S. CONST. amend. V ("[N]or shall private property be taken for public use without just compensation").

regulatory system finds itself plagued with constitutional doubts," noted the authors of a 1971 report on the growth of state and local land use controls.⁴⁰ Early court decisions concluding that environmental restrictions could constitute uncompensated regulatory takings further stoked these fears. In 1970, for example, the Supreme Judicial Court of Maine found that restrictions on private land use under the Maine Wetland Act constituted an uncompensated "taking" in violation of the Maine constitution.⁴¹

A century earlier in 1872, in *Pumpelly v. Green Bay Co.*, the U.S. Supreme Court explained the rationale for applying a constitutional prohibition on uncompensated takings to actions other than fee simple appropriations of private property:

It would be a very curious and unsatisfactory result, if in construing a provision of constitutional law . . . it shall be held that if the government refrains from the absolute conversion of real property to the uses of the public it can destroy its value entirely, can inflict irreparable and permanent injury to any extent, can, in effect, subject it to total destruction without making any compensation, because, in the narrowest sense of that word, it has not been *taken* for the public use.⁴²

Property rights consist of a bundle of rights to make use of a given property. In *Pumpelly*, the Court recognized the incongruity of a rule that would enable the government to avoid the compensation requirement by taking the use value of the land without taking title to the underlying fee.⁴³ In some instances, requiring land to be left in an undeveloped state could be tantamount to taking the land, or an interest therein, for the public purpose of conservation. In effect, the government would be free to take "sticks" from the bundle at no cost to itself. For this reason, the regulatory takings inquiry focuses on the nature and extent of the government regulation, rather than on whether the government takes title to the regulated land.⁴⁴

⁴⁰ BOSSELMAN & CALLIES, *supra* note 21, at 323.

⁴¹ *State v. Johnson*, 265 A.2d 711, 716 (Me. 1970); see also Joseph W. Gannon, Jr., *Constitutional Implications of Wetlands Legislation*, 1 ENVTL. AFF. 654, 654-665 (1971) (discussing and critiquing the *Johnson* decision). Gannon concludes that such cases "require the courts to be attentive to new scientific information and to shifting societal values." *Id.* at 665.

⁴² 80 U.S. (13 Wall.) 166, 177-78 (1871); see also JAMES W. ELY, *THE GUARDIAN OF EVERY OTHER RIGHT: A CONSTITUTIONAL HISTORY OF PROPERTY RIGHTS* 94 (3d ed. 2008).

⁴³ *Pumpelly*, 80 U.S. (13 Wall.) at 177-78.

⁴⁴ See *Penn Cent. Transp. Co. v. City of New York*, 438 U.S. 104, 124 (1978) (articulating key factors in the regulatory takings inquiry).

In 1922, the U.S. Supreme Court applied this rationale to government regulation in *Pennsylvania Coal Co. v. Mahon*.⁴⁵ The Pennsylvania Coal Company challenged a Pennsylvania statute that prohibited coal mining that could cause surface subsidence, claiming this rule effectively took their property without compensation in violation of the Takings Clause.⁴⁶ Where a regulation "goes too far," Justice Oliver Wendell Holmes explained in his opinion for the Court, it constitutes a "taking" under the Fifth Amendment, because such regulation would be tantamount to "appropriating or destroying" the property interest.⁴⁷ In such cases, compensation would have to be paid, or the statute would be declared invalid.⁴⁸ If this rationale could apply to government regulation of coal extraction, as it did in *Mahon*, it could apply to other environmental measures that prevent landowners from developing or otherwise making productive use of their land.⁴⁹

Despite the Court's holding in *Mahon*, there were relatively few successful challenges to land use regulations in subsequent decades.⁵⁰ When environmental land use controls started to become more restrictive in the 1960s, however, environmental advocates feared the *Mahon* holding might curtail such regulations. A 1973 report for the President's Council on Environmental Quality ("CEQ") on "the taking issue," warned that the Fifth Amendment's Takings Clause could be the "weak link" in efforts to protect environmental quality through land use control.⁵¹ Specifically, the authors feared that any compensation requirement would reduce the affordability of land use controls and hamper conservation.⁵² It concluded that "attempts to solve environmental problems through land use regulation are threatened by the fear that they will be challenged in court as an unconstitutional taking of property without compensation."⁵³

The authors of the CEQ report believed that it was necessary to "overcome" the takings problem in order to conserve environmental

⁴⁵ Pa. Coal Co. v. Mahon, 260 U.S. 393, 413, 415 (1922).

⁴⁶ *Id.* at 412.

⁴⁷ *Id.* at 414, 415.

⁴⁸ *Id.* at 413 ("When [regulation] reaches a certain magnitude, in most if not in all cases there must be an exercise of eminent domain and compensation to sustain the act.").

⁴⁹ See *id.* at 413-15.

⁵⁰ See ELY, *supra* note 42, at 119.

⁵¹ FRANK BOSSELMAN ET AL., THE TAKING ISSUE: A STUDY OF THE CONSTITUTIONAL LIMITS OF GOVERNMENTAL AUTHORITY TO REGULATE THE USE OF PRIVATELY-OWNED LAND WITHOUT PAYING COMPENSATION TO THE OWNERS, at iv (1973).

⁵² *Id.* at iv-v, 308-09.

⁵³ *Id.*

values.⁵⁴ The burgeoning environmental crisis was too great to accommodate the "myth" that landowners could exercise unfettered control over their own property.⁵⁵ Along the same lines, the 1973 Task Force on Land Use and Urban Growth concluded that the doctrine of regulatory takings would have to be limited for environmental reasons.⁵⁶

The assumption that requiring compensation for costs imposed by environmental land use controls necessarily hampers environmental protection has persisted.⁵⁷ Although some environmental economists support compensation on efficiency or environmental conservation grounds, environmental lobbying organizations are unanimous in their opposition to statutory or judicially imposed compensation requirements.⁵⁸ According to the Sierra Club, takings compensation proposals

⁵⁴ See *id.* at v ("[I]f the challenge posed by the taking issue can be overcome we believe it will make a very significant impact on environmental quality.").

⁵⁵ *Id.* at 2 ("[I]n an increasingly crowded and polluted environment can we afford to continue circulation of the myth that tells us that the takings clause protects this right of unrestricted use regardless of its impact on society? Obviously not . . .").

⁵⁶ THE USE OF LAND, *supra* note 38, at 24-25 ("Many [judicial] precedents are anachronistic now that land is coming to be regarded as a basic natural resource to be protected and conserved. . . . It is time that the U.S. Supreme Court re-examine its precedents that seem to require a balancing of public benefit against land value loss in every case and declare that, when the protection of natural, cultural or aesthetic resources or the assurance of orderly development are involved, a mere loss in land value is no justification for invalidating the regulation of land use."). The Task Force was created by the Citizen's Advisory Committee on Environmental Quality, "a body established by presidential executive order in May 1969." *Id.* at 1.

⁵⁷ See, e.g., John Echeverria, *The Taking Issue*, in LET THE PEOPLE JUDGE: WISE USE AND THE PRIVATE PROPERTY RIGHTS MOVEMENT 143, 148 (John Echeverria & Raymond Booth Eby eds., 1995) ("There can be little doubt that an expanded reading of the takings clause would in fact increase the cost of existing environmental programs and reduce the level of environmental protection Americans currently enjoy."); *id.* at 146 (arguing that the "beneficiaries of regulation," including those who suffer from environmental harm and "future generations" would suffer from a compensation requirement); Heyman, *supra* note 9, at 158; Joseph L. Sax, *Using Property Rights to Attack Environmental Protection*, 14 PAGE ENVTL. L. REV. 1, 2-3 (1996); Glenn P. Sugameli, *Takings Bills Threaten Private Property, People, and the Environment*, 8 FORDHAM ENVTL. L.J. 521, 522 (1997); see also David A. Dana, *Natural Preservation and the Race to Develop*, 143 U. PA. L. REV. 655, 656 (1995) (noting "the assumption underlying the affiliation of pro-preservation groups with the strict anti-compensation position"). But see E. Donald Elliott, *How Takings Legislation Could Improve Environmental Regulation*, 38 WM. & MARY L. REV. 1177, 1177 (1997); James W. Ely, Jr., *Property Rights and Environmental Regulation: The Case for Compensation*, 28 HARV. J.L. & PUB. POL'Y 51, 52 (2004) ("[S]crupulous regard for the constitutional rights of [property] owners is fully congruent with, and may even enhance, the achievement of sound environmental goals.").

⁵⁸ Some environmental organizations do, however, support incentive programs for landowners to lessen the impact of land use regulations on the margins. See Richard Stone, *Incentives Offer Hope for Habitat*, 269 SCIENCE 1212, 1212 (1995) (describing a report endorsing incentives and supported by scientists and land managers from environmental organizations, industry, and government). Groups supporting the use of "positive rein-

are part of "an overt and calculated attack on the environment," and "an assault on the guiding principle of virtually all laws governing air, water, and waste disposal."⁵⁹ Glenn Sugameli of the National Wildlife Federation argued that paying compensation to landowners for environmental restrictions would "impose massive costs on taxpayers" and "cause an inability to enforce protections for people, private property, and public resources."⁶⁰ Others refer to the push for compensation as part of an "anti-environmental agenda"⁶¹ that might mean "the end of environmental law."⁶² Political efforts to subject environmental land use controls to the Fifth Amendment have "the potential to put all modern environmental and land use laws at risk."⁶³

Property rights activists and others who support greater compensation for the costs of environmental land use regulations rarely make environmental arguments for their position.⁶⁴ To the contrary, some

forcement" to encourage habitat conservation include the National Wildlife Federation, National Audubon Society, and Environmental Defense (formerly known as the Environmental Defense Fund, or EDF). *See id.*; Audubon, Congress Weighs Expanding Species Protections with New Incentives for Landowners, <http://www.audubon.org/campaign/esa/landownerIncentives.html> (last visited Feb. 20, 2007) (supporting legislation that includes incentives for habitat conservation); National Wildlife Federation, Help Private Landowners Protect Endangered Plants and Animals!, <https://online.nwf.org/site/Advocacy?pagename=homepage&page=UserAction&id=259&src=ActionHQ> (last visited Feb. 20, 2007) (same); *see also* Thomas Eisner et al., *Building a Scientifically Sound Policy for Protecting Endangered Species*, 269 SCIENCE 1231, 1232 (1995) (calling for "supplementing the law's regulatory requirements with economic incentives"). One environmental organization, Defenders of Wildlife, developed a program to compensate ranchers for the costs of wolf depredation in order to reduce landowner opposition to wolf reintroduction under the ESA. *See* Todd G. Olson, *Biodiversity and Private Property: Conflict or Opportunity?*, in BIODIVERSITY AND THE LAW 67, 71 (William J. Snape III ed., 1996) (discussing wolf compensation program); *see also* Defenders of Wildlife, The Bailey Wildlife Foundation Wolf Compensation Trust, http://www.defenders.org/programs_and_policy/wildlife_conservation/solutions/wolf_compensation_trust/index.php (last visited Feb. 20, 2007) (describing compensation program).

⁵⁹ Robert Braile, *Enviros Scramble to Save Existing Laws*, GARBAGE, Fall 1994, at 35; Frank Clifford, *Bill Would Limit Federal Power over Environment*, L.A. TIMES, Dec. 28, 1994, at A1.

⁶⁰ Sugameli, *supra* note 57, at 522. Sugameli further claimed that "the budgetary impact of [takings] claims could have virtually the same practical effect as invalidating the law in question." *Id.* at 552.

⁶¹ Douglas T. Kendall & Charles P. Lord, *The Takings Project: A Critical Analysis and Assessment of the Progress So Far*, 25 B.C. ENVTL. AFF. L. REV. 509, 510 (1998).

⁶² *Id.* at 554.

⁶³ *Id.* at 562.

⁶⁴ Supporters of "free market environmentalism," on the other hand, have long stressed the negative environmental impacts of uncompensated land use regulations. *See, e.g., Environmental Regulations and Property Rights: Hearing on S. 605 and H.R. 925 Before the S. Comm. on the Environment and Public Works*, 104th Cong. 1-10 (1995) (statement of Jonathan H. Adler, Director of Environmental Studies, Competitive Enterprise Institute) (describing environ-

are openly dismissive of environmental concerns. Instead of engaging environmental arguments directly, compensation proponents often make arguments about "fairness" and "efficiency."⁶⁵ They further stress that the underlying purpose of the Fifth Amendment's Takings Clause was to prevent political majorities from imposing costs for the provision of public goods on less powerful minorities.⁶⁶

Regulating land use so as to obtain some of the benefits of ownership entails costs, but these costs may seem to be significantly less if one need not pay for acquisition of the property interest. Yet this does not make regulation cost-free. Providing public goods always entails costs to someone; a compensation requirement, "simply determines who that someone is."⁶⁷ As the New York Court of Appeals explained, if government is not forced to compensate for property taken, "the ultimate economic cost of providing the benefit is hidden from those who in a democratic society are given the power of deciding whether or not they wish to obtain the benefit"⁶⁸ When the cost of providing a public good is thus "successfully concealed, the public is not likely to have any objection to the 'cost-free' benefit."⁶⁹ Why pay full-price for something that is available at a discounted price? If sticks from the bundle of rights are free for the taking, there is no reason to purchase the underlying fee.

mental harms of uncompensated regulatory takings); Richard L. Stroup, *Endangered Species Act: Making Innocent Species the Enemy*, PERC POLICY SERIES NO. PS-3 (Apr. 1995), available at <http://www.perc.org/perc.php?id=648>.

⁶⁵ See Vicki Been, *Lucas v. The Green Machine: Using the Takings Clause to Promote More Efficient Regulation?*, in PROPERTY STORIES 221, 222 (Gerald Korngold & Andrew P. Morriss eds., 2004) (noting the dominant arguments in favor of compensation stress either fairness or efficiency); Echeverria, *supra* note 31, at 31 (summarizing fairness objection to uncompensated environmental regulations); J.B. Ruhl, *The Endangered Species Act and Private Property: A Matter of Timing and Location*, 8 CORNELL J.L. & PUB. POL'Y 37, 37 (1998) (noting that the debate over the ESA "takes for granted that landowners threaten species and that the ESA threatens landowners"); see also Nancie G. Marzulla, *The Property Rights Movement: How It Began and Where It Is Headed*, in LAND RIGHTS: THE 1990S' PROPERTY RIGHTS REBELLION 1, 5-7 (Bruce Yandle ed., 1995); Eagle, *supra* note 9, at 2-3.

⁶⁶ See *Armstrong v. United States*, 364 U.S. 40, 49 (1960) (Harlan, J., dissenting) (stating that the Takings Clause "was designed to bar government from forcing some people alone to bear public burdens which, in all fairness and justice, should be borne by the public as a whole"); Eagle, *supra* note 65, at 23 (quoting Justice Harlan).

⁶⁷ James L. Huffman, *Avoiding the Takings Clause Through the Myth of Private Rights: The Public Trust Doctrine and Reserved Rights Doctrine at Work*, 3 J. LAND USE & ENVT'L. L. 171, 173 n.9 (1987).

⁶⁸ *Fred F. French Investing Co. v. City of New York*, 350 N.E.2d 381, 387 (N.Y. 1976) (citing Allison Dunham, *Legal and Economic Basis for Planning*, 58 COLUM. L. REV. 650, 665 (1958)).

⁶⁹ *Id.*

Both those who support and oppose a compensation requirement appear to accept the same implicit premise: paying compensation will come at the expense of environmental conservation.⁷⁰ Framed in this way, the choice becomes one between advancing fairness and efficiency concerns through compensation and promoting ecological values through uncompensated regulation. Too little attention is paid to the actual ecological consequences of uncompensated regulatory takings. Largely unasked is whether imposing land use controls without paying compensation actually serves environmental goals. It is to this question that this Article now turns.

II. PERVERSE INCENTIVES FOR LANDOWNERS

Environmental land use regulations limit the use or development of private lands that provide valuable ecological services. Such regulations impose significant costs on landowners, both economic and otherwise. They may also reduce property values.⁷¹ Land use restrictions may also impose subjective costs on landowners by disrupting traditional land uses or reducing the landowner's sense of ownership, autonomy, or control.⁷² As a consequence, government regulation increases the costs of owning ecologically valuable land, and thereby discourages the maintenance and protection of such lands by private landowners.

The negative effect of uncompensated land use regulations on environmental conservation is best observed in the context of species conservation, though we should expect to observe similar phenomena any time environmental land use regulations impose significant, uncompensated costs on private landowners. Under federal endangered species preservation regulations, landowners can be prohibited from modifying or destroying habitat on their own land, and this has had significant effects on landowner willingness to provide habitat for endangered species.⁷³ Insofar as other land use regulations operate in a similar fashion, and impose use restrictions on land that is undeveloped or has other environmentally desirable characteristics, they can be expected to produce equivalent results. Federal wetlands regulations under section 404 of the CWA, for example, likely discourage wetland

⁷⁰ See *supra* notes 57–69 and accompanying text.

⁷¹ Turnbull, *supra* note 7, at 365.

⁷² See generally MARGARET JANE RADIN, REINTERPRETING PROPERTY 35–71 (1993) (arguing that property may be tied into an individual's sense of identity and personhood).

⁷³ See 16 U.S.C. § 1538 (2000); see *infra* notes 115–197 and accompanying text.

conservation and restoration on private land, and may even encourage land modifications that can destroy wetland characteristics.⁷⁴

This Part first explains why, in theory, the imposition of private land use controls can be expected to discourage landowners from creating or maintaining ecosystem services on their land.⁷⁵ This discussion focuses primarily on the incentives created for landowners under section 9 of the ESA, specifically the incentives against maintaining and protecting species habitat.⁷⁶ Other regulatory programs that operate in a similar fashion can be expected to produce equivalent incentives.

Although there is some debate in the economic literature about whether a compensation requirement would produce more efficient land use patterns, there is a reasonably broad consensus that—at least in the context of habitat conservation and some other environmental amenities—a failure to compensate landowners will produce significant negative environmental effects on the margin.⁷⁷ Because much landowner behavior is unobservable, perfect enforcement of land use controls is impossible. This makes the marginal incentives created by regulatory controls particularly important.

The validity of economic models and theoretical claims must ultimately be tested against the evidence. With that in mind, this Part next surveys the extensive range of anecdotal evidence supporting the theoretical prediction that uncompensated takings under the ESA are bad for species.⁷⁸ Anecdotes can only prove so much, however.⁷⁹ Therefore, the discussion that follows summarizes several recent empirical studies regarding the consequences of uncompensated regulatory takings on the provision of habitat on private land.⁸⁰ The studies conducted to date uniformly support the hypothesis that section 9 of the ESA harms species conservation efforts on private land because of the incentives it creates.⁸¹ These studies, which have received minimal attention in the environmental law literature,⁸² offer important empirical evidence that

⁷⁴ See *infra* notes 199–206 and accompanying text.

⁷⁵ See *infra* notes 87–114 and accompanying text.

⁷⁶ See *infra* notes 87–114 and accompanying text.

⁷⁷ See *infra* notes 87–114 and accompanying text.

⁷⁸ See *infra* notes 115–158 and accompanying text.

⁷⁹ Cf. Nelson W. Polsby, *Where Do You Get Your Ideas?*, 26 PS: POL. SCI. & POL. 83, 83 (Mar. 1993) (quoting Raymond Wolfinger, “[T]he plural of anecdote is data . . .”).

⁸⁰ See *infra* notes 164–197 and accompanying text.

⁸¹ See *infra* notes 164–197 and accompanying text.

⁸² A Westlaw search of the TP-ALL database (all law reviews, texts, and bar journals) for the four studies discussed in Part II.C was conducted in August 2007, and again on October 16, 2007. Of the four studies, only two were cited in any articles, and only one by anyone other than this author. The other two studies have not been cited in the legal lit-

uncompensated regulatory takings under the ESA have a significant negative impact on species conservation efforts.⁸³

Uncompensated land use regulations imposed under the ESA also appear to inhibit scientific research and the collection of data about species on private lands.⁸⁴ Thus, this Part also considers the anecdotal and empirical evidence that uncompensated regulatory takings frustrate efforts to enhance the knowledge base and improve our scientific understanding about the plight of endangered species and the habitats upon which they depend.⁸⁵ This Part concludes by suggesting that uncompensated land use regulations may help explain the ESA's poor record of species conservation on private land.⁸⁶

A. Theoretical Predictions

Many environmental land use controls were adopted with little consideration of the perverse incentives they could create.⁸⁷ Environmental regulations that limit a private landowner's ability to use her land due to its ecological value discourage the maintenance (let alone creation or enhancement) of environmental amenities.⁸⁸ Such regulations increase the cost of owning species habitat, wetlands, and other ecologically valuable lands.⁸⁹

erature at all, save for a reference to the unpublished manuscript of one study in one of the other studies.

⁸³ See *infra* notes 164–197 and accompanying text.

⁸⁴ See *infra* notes 207–225 and accompanying text.

⁸⁵ See *infra* notes 207–225 and accompanying text.

⁸⁶ See *infra* notes 226–243 and accompanying text.

⁸⁷ See Turnbull, *supra* note 7, at 360 ("The economic arguments traditionally used to justify land use controls and regulations are static in nature; they do not incorporate the intertemporal adjustments that market participants make in response to policy proposals."); Symposium, *Environmental Law, Wetlands Regulation, and Reform of the Endangered Species Act*, 31 WM. & MARY ENVTL. L. & POL'Y REV. 747, 774–75 (2007) (comments of John Kostyack) [hereinafter William & Mary Symposium] ("[T]he [ESA] was passed in 1973 as a fundamental regulatory law, and did not have many of the carrots that most people recognize are going to be necessary to get people doing positive things on the land.").

⁸⁸ See *infra* notes 89–114 and accompanying text.

⁸⁹ See, e.g., Thomas J. Miceli & Kathleen Segerson, *Government Regulation and Compensation for Takings: Implications for Agriculture*, 77 AM. J. AGRIC. ECON. 1177, 1177 (1995) ("[W]hether or not compensation is paid for such changes in government policies [restricting land use] can affect the value of agricultural land, as well as other land (e.g. forestland) . . ."). As Sam Hamilton, former Fish and Wildlife Service administrator for the State of Texas explained with regard to the ESA: "The incentives are wrong here. If I have a rare metal on my property, its value goes up. But if a rare bird occupies the land, its value disappears." Betsy Carpenter, *The Best-Laid Plans*, U.S. NEWS & WORLD REP., Oct. 4, 1993, at 89.

The landowner who defers the decision to develop is "opening himself to the risk that . . . development prohibition[s] will be imposed at some point in the future before the land is developed."⁹⁰ This creates a significant incentive to develop sooner, rather than later.⁹¹ One consequence is premature development. The regulatory risk can affect the density of development in addition to the timing.⁹² Habitat conservation under the ESA is the most obvious example of this phenomenon, but the same principles should apply in other conservation contexts where regulatory measures restrict the use and development of land containing ecologically valuable characteristics. The value of compensation is that it reduces the incentives to develop prematurely so as to reduce the risk of being regulated.⁹³

Economist Robert Innes argues that "it is not compensation per se that is necessary for the achievement of efficient development incentives but rather the 'equal treatment' of developed and undeveloped property owners."⁹⁴ In the environmental conservation context, however, there is no "equal treatment." Land use regulations are invariably focused on undeveloped, as opposed to developed, parcels, resulting in inefficient levels of development.⁹⁵

One argument against compensation is that it may create a "moral hazard" for landowners.⁹⁶ If landowners know they will be compensated

⁹⁰ Turnbull, *supra* note 7, at 369.

⁹¹ *Id.* at 370 ("The regulatory threat increases the riskiness of the investment returns from waiting to build on the land.").

⁹² *See id.* at 392 ("While poorly defined or defended property rights in general lead to a slower pace of development in an economy, the threat of land use regulation generally creates incentives for more rapid development than would otherwise be observed in the market."); *see also* Robert Innes et al., *Takings, Compensation, and Endangered Species Protection on Private Lands*, 12 J. ECON. PERSP. 35, 39 (1998); Robert Innes, *Takings, Compensation, and Equal Treatment for Owners of Developed and Undeveloped Property*, 40 J.L. & ECON. 403, 429 (1997) [hereinafter Innes, *Equal Treatment*] ("[T]he possibility of uncompensated takings gives landowners an incentive to develop their property early on in order to reduce the risk that it will later be appropriated for public use.").

⁹³ Innes et al., *supra* note 92, at 40 ("Compensation for a taking can restore efficient development incentives by reducing the 'use it or (maybe) lose it' motivation for overinvestment.").

⁹⁴ Innes, *Equal Treatment*, *supra* note 92, at 406.

⁹⁵ Land need not be in a "natural" or unmodified state to be subject to regulation, however. Environmental land use controls extend to human enhanced, restored, or created habitats, wetlands, and the like. *See, e.g.,* Leslie Salt Co. v. United States, 896 F.2d 354, 359-60 (9th Cir. 1990) (requiring a section 404 permit for the alteration of an artificially created seasonal wetland formerly used for salt manufacturing).

⁹⁶ *See* WILLIAM FISCHEL, *REGULATORY TAKINGS: LAW, ECONOMICS, AND POLITICS* 158-59 (1995); *see also* Lawrence E. Blume et al., *The Taking of Land: When Should Compensation Be Paid?*, 99 Q.J. ECON. 71, 81-86 (1984). As Fischel notes, even in the traditional eminent

for any eventual taking of their land, they will discount the risk of a taking, and therefore will be more likely to invest in improvements to their land that could be taken for public use.⁹⁷ This may cause landowners to overinvest in improvements to their land. The threat of overinvestment in development from the moral hazard created by a compensation rule, however, appears to be small in comparison to the inefficiencies and costs of under-compensation.⁹⁸

More importantly, the moral hazard problem that may exist in other contexts is absent where land use regulations seek to preserve land in an undeveloped condition.⁹⁹ In the environmental context, it is the threat of an uncompensated taking, not the potential for compensation, that will induce landowners to overinvest in development of their lands.¹⁰⁰ This is because it is the undeveloped nature of the land, and its value as wetlands, species habitat, or something else, that prompts the government regulation in the first place.¹⁰¹

Unlike in the standard eminent domain context, where environmental preservation is at issue, once land is developed the threat of

domain context, the existence of a moral hazard problem is dependent upon the nature of the underlying property rights in question. FISCHEL, *supra*, at 162.

⁹⁷ See Blume et al., *supra* note 96, at 81–86. This argument presumes that compensation for a taking makes the landowner whole, such that the landowner would be indifferent to whether or not the land is taken. This assumption is highly suspect in the eminent domain context, as those landowners for whom the amount of compensation is equal to the value of the land to them would be likely to agree to a voluntary sale of the property. Where the government is forced to resort to eminent domain, and there is no evidence that landowners are engaging in opportunistic behavior, the lack of agreement on a sale price is evidence that the landowner places a higher subjective value on the land in question than does the marketplace, and therefore compensation does not make the landowner whole.

There are also reasons why the use of eminent domain might have negative environmental consequences. See generally Somin & Adler, *supra* note 19 (arguing that there is a strong environmental rationale for strictly limiting or prohibiting the use of eminent domain for economic development).

⁹⁸ See William A. Fischel, *Public Goods and Property Rights: Of Coase, Tiebout, and Just Compensation*, in PROPERTY RIGHTS: COOPERATION, CONFLICT & LAW 343, 354 (Terry L. Anderson & Fred S. McChesney eds., 2003).

⁹⁹ Barton H. Thompson, Jr., *The Endangered Species Act: A Case Study in Takings and Incentives*, 49 STAN. L. REV. 305, 352 (1997).

¹⁰⁰ See Robert Innes, *The Economics of Takings and Compensation When Land and Its Public Use Value Are in Private Hands*, 76 LAND ECON. 195, 206 (2000) ("If the government takes private land without compensation, landowners have a compelling incentive to overinvest in public-value-depleting measures that reduce the government's interest in the land and thereby reduce the landowner's risk of a taking.").

¹⁰¹ See Thompson, *supra* note 99, at 352.

regulation drops significantly.¹⁰² As Professor David Dana notes, "investors have available to them an alternative to reducing their level of investment in response to the risk of future natural preservation regulation: they can accelerate their investments and, in essence, beat the regulatory clock."¹⁰³ Indeed, the surest way for a landowner to avoid regulation under the ESA is to ensure that her land does not constitute suitable habitat for a listed endangered species.¹⁰⁴ Similarly, once a wetland has been drained and no longer exhibits wetland characteristics, it is no longer subject to CWA permitting requirements.¹⁰⁵ Such preemptive land modification is economically inefficient, socially wasteful, and potentially environmentally devastating.¹⁰⁶ Under current law, it is perfectly legal for a landowner to take preventive action to make conservation of her land less desirable.¹⁰⁷ For this reason, the problem of preemptive action cannot be addressed by increasing enforcement levels or penalties under the relevant statutes.¹⁰⁸

¹⁰² Turnbull, *supra* note 7, at 369 ("Once a particular tract of land is developed, the irreversibility of land improvements erases any remaining threat of this kind of regulation for the tract.").

¹⁰³ Dana, *supra* note 57, at 681.

¹⁰⁴ Gardner M. Brown, Jr. & Jason F. Shogren, *Economics of the Endangered Species Act*, 12 J. ECON. PERSP. 3, 7 (1998) ("Since owning land which is hospitable to endangered species can dramatically circumscribe any development plans for that land, owners have an incentive to destroy the habitat before listing occurs, sometimes known as the 'shoot, shovel, and shut-up' strategy."); see also Morrow, *supra* note 3, at 192 (describing the "shoot, shovel, and shut up" phenomenon).

¹⁰⁵ The CWA prohibits the "discharge" of a "pollutant" into navigable waters of the United States without a permit. See 33 U.S.C. § 1311 (2000). Although "pollutant" is defined quite broadly, see 33 U.S.C.A. § 1362(6) (West 2001 & Supp. 2007), the Act does not prohibit draining or dredging wetlands.

¹⁰⁶ Thompson, *supra* note 99, at 351 (explaining that preventative destruction of habitat and other ecological services "threaten[s] the continued existence of the very species that the ESA is designed to protect").

¹⁰⁷ See Thompson, *supra* note 99, at 351 (noting that under the ESA, "[n]othing prevents a property owner from destroying habitat prior to the listing of a species, and nothing requires a property owner to allow his land to become viable habitat after listing."). Similarly, the plain language of the CWA only prohibits the deposit of dredged or fill material into jurisdictional wetlands, but does not explicitly prohibit other activities, such as draining, that may reduce wetland values. See 33 U.S.C. § 1344; Nat'l Mining Ass'n v U.S. Army Corps of Eng'rs, 145 F.3d 1399, 1401-02, 1404 (D.C. Cir. 1998) (vacating a regulation that required CWA section 404 permits for "incidental fallback," a side-effect of draining); *Save Our Cmty. v. Envtl. Prot. Agency*, 971 F.2d 1155, 1164-65 (5th Cir. 1992) (holding that the draining of a wetland alone does not require a permit under section 404 of the CWA).

¹⁰⁸ Some object to the perverse incentive argument on the grounds that it condones, or accepts, law breaking, and that increased prosecution and heightened penalties might address the problem. See, e.g., Echeverria, *supra* note 31, at 21. This objection is inapposite, however, as landowners can still destroy the ecological values of their lands *before* they be-

The economic effects of uncompensated land use regulation are not confined to those land parcels that are actually regulated.¹⁰⁹ The prospect of additional regulation on other lands has economic effects as well. As Professor Geoffrey Turnbull explains, "the threat of regulation itself alters private property rights by restricting landowners' perceived options."¹¹⁰ Although development permits may be available, landowners and investors cannot know beforehand whether their permit applications will be granted.¹¹¹ Indeed, there is little assurance that they will even receive a formal approval or rejection within a definite time period.¹¹² By threatening to limit available land uses, such regulations make landowner rights in such lands less secure. A lack of secure property rights increases the incentive to deplete land's value and shortens landowners' time horizons.¹¹³ Where property rights are less secure, owners are also less likely to invest in improving or protecting a resource, and are more likely to consume it as quickly as possible.¹¹⁴

B. An Army of Anecdotes

Anecdotal accounts of private landowners induced to take "anti-environmental" action in response to environmental land use regulations are legion.¹¹⁵ Most, but not all, of these anecdotes concern the ESA. Because of the way the ESA works, many landowners have no in-

come subject to regulatory requirements. As J.B. Ruhl observes, "[T]here will always be some point before which the regulation does not apply and thus when landowners will be free to destroy a species' habitat." Ruhl, *supra* note 65, at 47.

¹⁰⁹ Turnbull, *supra* note 7, at 365 ("Because land use regulation alters investment incentives for both regulated and for *unregulated* property, the unintended consequence of a regulation that is intended to improve social well-being may be to reduce it.").

¹¹⁰ *Id.* at 367; *see also id.* at 366–67 ("The *threat* of regulation, whether or not the taking actually occurs, introduces uncertainty into property rights, and as a consequence, alters investment incentives.").

¹¹¹ *Id.* at 368.

¹¹² *See id.* ("[The] ESA creates a degree of uncertainty over possible development restrictions that might arise in the indefinite future.").

¹¹³ As Anthony Scott observes, "No one will take the trouble to husband and maintain a resource unless he has a reasonable certainty of receiving some portion of the product of his management; that is, unless he has some property right in the yield." Anthony Scott, *The Fishery: The Objectives of Sole Ownership*, 63 J. POL. ECON. 116, 116 (1955). Although it may be an overstatement to claim that "no one" will act in such a manner, the marginal effect should be indisputable. *See id.*

¹¹⁴ For the classic analysis, see Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243, 1244 (1968); *see also* YORAM BARZEL, *ECONOMIC ANALYSIS OF PROPERTY RIGHTS* 7–9, 100 (2d ed. 1997).

¹¹⁵ Polasky & Doremus, *supra* note 6, at 42 ("[S]tories of property owners who 'shoot, shovel, and shut up' are rampant.").

centive to make their lands more suitable for imperiled species.¹¹⁶ Worse, the ESA creates an incentive for some landowners to consider managing their land so as to prevent such species from using it.¹¹⁷ The National Association of Home Builders advised its members that "the highest level of assurance that a property owner will not face an ESA issue is to maintain the property in a condition such that protected species cannot occupy the property."¹¹⁸ Writing in *Conservation Biology*, a group of wildlife biologists observed that "the regulatory approach to conserving endangered species and diminishing habitats has created anti-conservation sentiment among many private landowners who view endangered species as economic liabilities."¹¹⁹ As a consequence of these negative incentives there is less and lower-quality available habitat for endangered species.¹²⁰

Among the most infamous episodes involving the perverse incentives created by the ESA involved North Carolina landowner Ben Cone.¹²¹ Cone owned over 7000 acres of timberland in North Caro-

¹¹⁶ Michael J. Bean, *Overcoming Unintended Consequences of Endangered Species Regulation*, 38 IDAHO L. REV. 409, 414 (2002). Bean notes, "This is not a new observation." *Id.*

¹¹⁷ *Id.* at 415.

¹¹⁸ Michael J. Bean, *The Endangered Species Act and Private Land: Four Lessons Learned From the Past Quarter Century*, 28 ENVTL. L. REP. (Envtl. Law Inst.) 10,701, 10,706 (1998) (quoting NAT'L ASS'N OF HOME BUILDERS, DEVELOPER'S GUIDE TO ENDANGERED SPECIES REGULATION 109 (1996)).

¹¹⁹ Martin B. Main et al., *Evaluating Costs of Conservation*, 13 CONSERVATION BIOLOGY 1262, 1263 (1999). The authors further explain:

Landowners fear a decline in value of their properties because the ESA restricts future land-use options where threatened or endangered species are found but makes no provisions for compensation. Consequently, endangered species are perceived by many landowners as a financial liability, resulting in anticonservation incentives because maintaining high-quality habitats that harbor or attract endangered species would represent a gamble against loss of future opportunities.

Id. at 1265.

¹²⁰ Bean, *supra* note 116, at 415.

¹²¹ The Cone story is regularly recounted to illustrate the potential impacts of the economic incentives created by the ESA. See, e.g., Shi-Ling Hsu, *A Game-Theoretic Approach to Regulatory Negotiation and a Framework for Empirical Analysis*, 26 HARV. ENVTL. L. REV. 33, 59 (2002); Innes, *supra* note 100, at 195; Christian Langpap, *Conservation Incentive Programs for Endangered Species: An Analysis of Landowner Participation*, 80 LAND ECON. 375, 375 (2004); Richard L. Stroup, *The Economics of Compensating Property Owners*, 15 CONTEMP. ECON. POL'Y 55, 57-58 (1997); see also Holly Price, *Red Cockaded Woodpecker; Pender Man Suing over Bird Habitat; Compensation Sought for Trees He Can't Cut*, WILMINGTON STAR-NEWS, July 22, 1995, at 4A; Ike C. Sugg, Editorial, *The Timber Summit: Ecosystem Babbitt-Babble*, WALL ST. J., Apr. 2, 1993, at A10. One reason the Cone story received significant attention was because his plight was brought to the attention of Interior Secretary Bruce Babbitt by then-Senator Lauch Faicloth (R-NC). This account is based on Lee Ann Welch, *Property Rights Conflicts*

lina.¹²² Given his interest in wildlife, Cone devoted substantial efforts to improving the quality of species habitat on his land, maintaining long timber rotation cycles and engaging in selective logging and understory management.¹²³ His efforts proved successful, as populations of many species increased on his land, including wild turkey, quail, black bear, and deer.¹²⁴ But Cone's good deeds would not go unpunished.

Among the species that benefited from Cone's careful stewardship was the red-cockaded woodpecker (the "RCW"), a species listed as endangered under the ESA.¹²⁵ In order to preserve the habitat that Cone had helped create, the U.S. Fish and Wildlife Service (the "FWS") placed over 1000 acres of his land off limits to logging.¹²⁶ As a consequence, the value of Cone's land plummeted, costing him an estimated \$2 million.¹²⁷ Cone learned his lesson: if he wanted to be able to make productive use of his land, he should not manage it in a way that attracts RCWs. As he commented at the time, "I cannot afford to let those woodpeckers take over the rest of the property. . . . I'm going to start massive clearcutting"¹²⁸ So Cone accelerated his timber rotations and began to clear other portions of his land to prevent further woodpecker infestations on his property.¹²⁹

Regrettably, the story of Ben Cone is anything but an isolated incident.¹³⁰ Consider a handful more of the many anecdotal accounts of the ESA's perverse incentives in action:

- In Kern County, California, landowners regularly disced their lands to prevent the regrowth of endangered species habitat.¹³¹ As one landowner explained, "Because of the Endangered Species Act we disc everything all the time. We are afraid of an endangered

Under the Endangered Species Act: Protection of the Red-Cockaded Woodpecker, in LAND RIGHTS: THE 1990S' PROPERTY RIGHTS REBELLION, *supra* note 65, at 151, 173–85.

¹²² Welch, *supra* note 121, at 173.

¹²³ *Id.* at 173–75.

¹²⁴ *Id.* at 173.

¹²⁵ *Id.* at 174.

¹²⁶ *Id.*

¹²⁷ Welch, *supra* note 121, at 175.

¹²⁸ Sugg, *supra* note 121.

¹²⁹ Welch, *supra* note 121, at 174–75. The publicity surrounding the Cone case eventually resulted in the FWS granting Cone an incidental taking permit allowing him to take *all* of the woodpeckers on his property. See 61 Fed. Reg. 36,390 (July 10, 1996); 62 Fed. Reg. 54,122 (Oct. 17, 1997); see also Marianne Lavelle, *Feds Settle to Save Act and Species but Critics Say Deals May Hurt Not Help Endangered*, NAT'L L.J., Dec. 16, 1996, at A1.

¹³⁰ See *infra* notes 131–139 and accompanying text.

¹³¹ David Parrish, *Environmental Dilemma*, L.A. DAILY NEWS, Mar. 19, 1995, at 10.

species moving in. . . . [Discing] cost[s] \$25 per acre. It's not cheap. But the risk of not doing it is too great."¹³²

- In the Pacific Northwest, the FWS found that land use restrictions imposed to protect the northern spotted owl scared private landowners enough that they "accelerated harvest rotations in an effort to avoid the regrowth of habitat that is usable by owls."¹³³
- In Texas Hill Country, landowners razed hundreds of acres of juniper tree stands after the golden-cheeked warbler was listed as an endangered species, to prevent the trees' occupation.¹³⁴
- In Boiling Springs Lakes, North Carolina, landowners began clearing timber from their property while the FWS drew up maps of RCW nests, fearing more land would be placed off limits to logging or development.¹³⁵ As the Mayor Joan Kinney explained, "People are just afraid a bird might fly in and make a nest and their property is worth nothing It is causing a tremendous amount of clear-cutting."¹³⁶ In just eight months, the city issued 368 logging permits, even though few landowners sought building permits.¹³⁷
- Farmers in northern Sacramento County, California, have shifted from growing rice to other crops, partly due to fears their land could be regulated as garter snake habitat.¹³⁸
- When the FWS proposed listing the San Diego Mesa Mint as endangered, land containing the plant was bulldozed before the listing could take effect.¹³⁹

¹³² *Id.* Similarly, in California's Central Valley, farmers plow fallow fields to destroy potential habitat and prevent the growth of vegetation that could attract endangered species. Jennifer Warren, *Revised Species Protection Law Eases Farmers' Anxiety*, L.A. TIMES, Oct. 11, 1997, at A1.

¹³³ 60 Fed. Reg. 9507-08 (Feb. 17, 1995); see also Bean, *supra* note 118, at 10,706 (describing the same phenomenon).

¹³⁴ See JAMES V. DELONG, PROPERTY MATTERS 103 (1997); David Wright, *Death to Tweety*, NEW REPUBLIC, July 6, 1992, at 9-10. Among those landowners who engaged in preemptive habitat destruction was H. Ross Perot. Wright, *supra*, at 8-9.

¹³⁵ Wade Rawlins, *Woodpecker Mapping Gets Chain Saws Buzzing*, NEWS & OBSERVER (Raleigh, N.C.), Aug. 7, 2006, at A1.

¹³⁶ *Id.*

¹³⁷ *Rare Woodpecker Sends a Town Running for Its Chain Saws*, N.Y. TIMES, Sept. 24, 2006, at 30. In an ironic twist, the primary reason the small town was so attractive to red-cockaded woodpeckers in the first place was because tree notches left from local turpentine production made the pines better potential nesting sites. *Id.*

¹³⁸ Mary Lynne Vellinga, *Owners Turn Off Spigot on Rice Fields*, SACRAMENTO BEE, Aug. 14, 2007, at A1, available at <http://www.sacbee.com/101/story/323680.html>.

¹³⁹ See CHARLES C. MANN & MARK L. PLUMMER, NOAH'S CHOICE: THE FUTURE OF ENDANGERED SPECIES 187 (1995); Charles C. Mann & Mark Plummer, *Is Endangered Species Act*

Some environmental activist groups have sought to discount or refute anecdotal accounts of the ESA's perverse incentives and their implications for successful species conservation.¹⁴⁰ In the early 1990s, as these sorts of stories first began to receive attention, major environmentalist groups were touting the ESA as a success, claiming it has saved species "without frequent conflict of a draconian nature."¹⁴¹ The Endangered Species Coalition, an umbrella organization representing environmental groups focused on ESA reform, sought to strengthen the ESA by stiffening enforcement, increasing penalties and "closing the legal loopholes," all the while denying that the Act had any significant impact on private landowners.¹⁴² A lawyer with the National Wildlife Federation even maintained that the ESA "has never prevented property owners from developing their land."¹⁴³

Nevertheless, as anecdotal evidence of the ESA's anti-environmental incentives mounted, and the status of species dependent on private land failed to improve, some environmental leaders took notice. Among them was wildlife law expert Michael Bean of Environmental Defense. In a 1994 speech to FWS personnel, Bean acknowledged the following:

[There is] increasing evidence that at least some private landowners are actively managing their land so as to avoid potential endangered species problems. The problems they're trying to avoid are the problems stemming from the Act's prohibition against people taking endangered species by adverse modification of habitat. And they're trying to avoid

in Danger?, 267 SCIENCE 1256, 1258 (1995); Holmes Rolston III, *Property Rights and Endangered Species*, 61 U. COLO. L. REV. 283, 283-84 (1990). Even though endangered plants are not subject to the same level of regulatory protection as endangered animals, the presence of an endangered plant can prevent the issuance of a federally required permit. See 16 U.S.C. § 1538(a)(1) (2000) (limiting the "take" prohibition to "endangered species of fish or wildlife"); *id.* § 1538(a)(2)(B), (E) (extending certain other prohibitions to endangered plants).

¹⁴⁰ See, e.g., Echeverria, *supra* note 31, at 22 ("[T]he allegedly perverse environmental costs of the regulatory approach are probably overstated by regulation's critics.").

¹⁴¹ Michael J. Bean, *Taking Stock: The Endangered Species Act in the Eye of a Growing Storm*, 13 PUB. LAND L. REV. 77, 86 (1992) (Bean is a senior attorney and Chairman of the Wildlife Program at Environmental Defense).

¹⁴² JONATHAN H. ADLER, ENVIRONMENTALISM AT THE CROSSROADS: GREEN ACTIVISM IN AMERICA 18-19 (1995) (summarizing the Endangered Species Coalition's 1994 "action agenda").

¹⁴³ John Kostyack, Letter to the Editor, *If Ecosystem Is Harmed, We're All Endangered*, WALL ST. J., May 12, 1994, at A15.

those problems by avoiding having endangered species on their property.¹⁴⁴

As Bean recounted, the incentives of the ESA created a race to clear potential habitat before the FWS would impose additional requirements.¹⁴⁵

Bean observed that landowners could take a number of different steps to avoid "endangered species problems."¹⁴⁶ In the case of the RCW, these included "deliberately harvesting their trees before they reach sufficient age to attract woodpeckers," even if this meant cutting trees "before they reach the optimum age from an economic point of view."¹⁴⁷ Landowners could further make their lands less attractive to RCWs "simply by refraining from understory management," or replanting alternate tree species.¹⁴⁸ Although Bean characterized these effects as "surprising" in a subsequent article,¹⁴⁹ in 1994, he explained landowner responses were "fairly rational decisions motivated by a desire to avoid potentially significant economic constraints" and "nothing more than a predictable response to the familiar perverse incentives that sometimes accompany regulatory programs."¹⁵⁰

The threat of regulation can affect the willingness of landowners to participate in voluntary conservation agreements.¹⁵¹ Bob Stallman of the Texas Farm Bureau testified in 1995, before a congressional task force on wetlands and endangered species, that so long as the existing regulatory strictures remain in place, his members "are not going to want to work actively and openly to promote or propagate a species as long as there is that threat of future government intervention and regulation of the use of that land."¹⁵² As Michael Bean observes, the

¹⁴⁴ Michael Bean, Chair, Env'tl. Def. Fund Wildlife Program, Remarks at the U.S. Fish and Wildlife Service Office of Training and Education Seminar Series: Ecosystem Approaches to Fish and Wildlife Conservation: "Rediscovering the Land Ethic" 5 (Nov. 3, 1994) (transcript on file with author).

¹⁴⁵ *Id.*

¹⁴⁶ *Id.*

¹⁴⁷ *Id.*

¹⁴⁸ *Id.*

¹⁴⁹ Bean, *supra* note 118, at 10,701.

¹⁵⁰ Bean, *supra* note 144, at 6.

¹⁵¹ Christian Langpap & JunJie Wu, *Voluntary Conservation of Endangered Species: When Does No Regulatory Assurance Mean No Conservation?*, 47 J. ENVTL. ECON. & MGMT. 435, 435 (2004).

¹⁵² *Hearing Before the Task Force on Endangered Species and Task Force on Wetlands of the H. Resources Comm.*, 104th Cong. 91 (1995) (statement of Bob Stallman, President, Texas Farm Bureau). Similarly, Dayton Hyde, founder of Operation Stronghold, a nonprofit conservation organization, attests from personal experience that, even for those who wish to engage in habitat conservation on their own land, "It's just plain easier and a lot safer to sterilize the land." TERRY L. ANDERSON & DONALD R. LEAL, *FREE MARKET ENVIRONMENTALISM* 72 (2d ed. 2001).

ESA's uncompensated land use controls result in "simple unwillingness to do the mundane management activities that could create or enhance habitat for rare species."¹⁵³ This is a problem because, in many cases, the absence of harmful behavior may not be sufficient to conserve and recover endangered species.¹⁵⁴ As the FWS has acknowledged, the costs imposed by habitat modification restrictions "in some cases may actually generate disincentives for private landowner support for threatened species conservation."¹⁵⁵

For the purposes of environmental conservation, the important question is whether the negative effects of environmental land use controls are isolated or widespread. In 1993, Dr. Larry McKinney, Director of Resource Protection for the Texas Parks and Wildlife Department, said he believed "more habitat for the black-capped vireo, and especially the golden-cheeked warbler, has been lost in those areas of Texas since the listing of these birds than would have been lost without the ESA at all."¹⁵⁶ Yet he also acknowledged that he lacked hard empirical evidence to substantiate this claim.¹⁵⁷ In the past several years, however, researchers have undertaken more systematic analyses of the incentives created by uncompensated land use controls.¹⁵⁸

C. Empirical Evidence of Habitat Loss

At one time it was possible to discount the environmental critique of the ESA insofar as it was based upon anecdotal evidence.¹⁵⁹ Although the perverse-incentive problem was acknowledged by many environ-

¹⁵³ Bean, *supra* note 116, at 415.

¹⁵⁴ Langpap & Wu, *supra* note 151, at 436.

¹⁵⁵ See Endangered and Threatened Wildlife and Plants; Proposed Rule Exempting Certain Small Landowners and Low-Impact Activities From Endangered Species Act Requirements for Threatened Species, 60 Fed. Reg. 37,419, 37,420 (July 20, 1995).

¹⁵⁶ Larry McKinney, *Reauthorizing the Endangered Species Act—Incentives for Rural Landowners*, in BUILDING ECONOMIC INCENTIVES INTO THE ENDANGERED SPECIES ACT 71, 74 (1993); see also Ruhl, *supra* note 65, at 45–47 (discussing landowner efforts to avoid having land designated as habitat for the black-capped vireo).

¹⁵⁷ McKinney, *supra* note 156, at 74.

¹⁵⁸ See *infra* notes 164–197 and accompanying text.

¹⁵⁹ See Jeffrey J. Rachlinski, *Protecting Endangered Species Without Regulating Private Landowners: The Case of Endangered Plants*, 8 CORNELL J.L. & PUB. POL'Y 1, 36 (1998) ("Other than anecdotes . . . there is no evidence to support the conclusion that these [ESA] restrictions actually harm species."); see also Thompson, *supra* note 99, at 307 (explaining that discussions of the ESA suffer from a "data gap" that is "supplanted with raw assertions and anecdotes, many of which are embellished or apocryphal"); Daowei Zhang & Warren A. Flick, *Sticks, Carrots, and Reforestation Investment*, 77 LAND ECON. 443, 445 (2001) ("The influence of the ESA on landowner investment behavior has been a subject of speculation and debate, but very little empirical study.").

mental researchers and wildlife conservationists, it was difficult to determine whether such incentives had a meaningful impact on conservation efforts.¹⁶⁰ The failure of the ESA to conserve species on private lands was certainly suggestive of a problem.¹⁶¹ Nonetheless, there was little firm evidence that uncompensated land use regulations were having widespread negative environmental impacts.¹⁶² Today, however, there is significant empirical support for the anecdotal and theoretical claims that land use regulations harm species conservation efforts on private land as a result of the incentives created for private landowners.¹⁶³

The first study documenting the negative environmental effects of uncompensated land use regulations, by economists Dean Lueck and Jeffrey Michael, examined the rate of preemptive habitat destruction by owners of private timberland at risk of federal regulation due to the presence of endangered RCWs.¹⁶⁴ Providing habitat for a single RCW colony can cost up to \$200,000 in foregone timber harvests.¹⁶⁵ To avoid this result, those landowners at greatest risk of ESA-imposed restrictions were most likely to harvest their forestlands prematurely and to reduce the length of their timber harvesting rotations, even at the potential expense of lost timber income.¹⁶⁶

Lueck and Michael found that "increases in the probability of ESA land-use restrictions, as measured by a landowner's proximity to existing RCW colonies, increase the probability of forest harvest and decrease the age at which timber is harvested."¹⁶⁷ Because RCWs depend upon older trees for nesting cavities, cutting timber at a younger age deprives RCWs of potential habitat.¹⁶⁸ Lueck and Michael estimated that RCWs lost several thousand acres of habitat due to such effects, enough to provide habitat for between twenty-five and seventy-six RCW

¹⁶⁰ See Thompson, *supra* note 99, at 351 (stating that "[t]here is no reliable estimate" of the extent to which landowners have engaged in preemptive habitat modification).

¹⁶¹ See *infra* notes 226–243 and accompanying text.

¹⁶² See Rachlinski, *supra* note 159, at 36.

¹⁶³ See *infra* notes 164–197 and accompanying text.

¹⁶⁴ See generally Dean Lueck & Jeffrey A. Michael, *Preemptive Habitat Destruction Under the Endangered Species Act*, 46 J.L. & ECON. 27 (2003).

¹⁶⁵ *Id.* at 33. The estimates cited by Lueck and Michael are based upon the maintenance of *minimum* habitat requirements for a woodpecker colony. If land use restrictions are designed to provide greater protection of woodpecker habitat, the costs would be greater. See *id.* at 33 n.27.

¹⁶⁶ *Id.* at 51–52.

¹⁶⁷ *Id.* at 31.

¹⁶⁸ *Id.* at 32.

colonies, in the state of North Carolina alone.¹⁶⁹ Given that ESA restrictions only protected eighty-four woodpecker colonies on private land at the time of the Lueck and Michael study, their findings are quite significant.¹⁷⁰

A second study on RCW habitat by Daowei Zhang confirmed the Lueck and Michael findings.¹⁷¹ Zhang found that "regulatory uncertainty and lack of positive economic incentives alter landowner timber harvesting behavior and hinder endangered species conservation on private lands."¹⁷² Absent the regulatory uncertainty created by the ESA, "landowners choose among harvesting methods to maximize stumpage revenue . . . subject to constraints such as forest stand characteristics . . . , aesthetics, management objective, and tax liability."¹⁷³ The threat of regulatory prohibitions on timber activity, however, alters the landowners' calculation. Zhang found that "a landowner is 25% more likely to cut forests when he or she knows or perceives that a RCW cluster is within a mile of the land than otherwise."¹⁷⁴ The threat of ESA regulation also increased the likelihood that a landowner would engage in clear-cutting when harvesting the timber, as opposed to a selective harvesting technique that may have less severe ecological impacts.¹⁷⁵ On this basis Zhang concluded that "at least for the RCW, the ESA has a strong negative effect on habitat," and this effect appears to be "substantial."¹⁷⁶

The Zhang study, like the Lueck and Michael study, confirmed the anecdotal observations made by Bean and others:

Despite the use of different data, the basic conclusions reached in these two studies are similar: the ESA regulations actually lead landowners [to] cut their timber sooner, to the detriment of the RCW, than they otherwise would do. As a consequence, RCW habitats have been reduced on private lands because of

¹⁶⁹ Lueck & Michael, *supra* note 164, at 53–54.

¹⁷⁰ *Id.* at 54. Lueck and Michael also note that "our study can also be seen as an underestimate of the total perverse impacts since we consider only preemptive timber harvesting and do not measure direct harm to RCWs or more indirect, passive approaches to reducing habitat." *Id.* at 55.

¹⁷¹ See Daowei Zhang, *Endangered Species and Timber Harvesting: The Case of Red-Cockaded Woodpeckers*, 42 *ECON. INQUIRY* 150, 150 (2004).

¹⁷² *Id.* at 151.

¹⁷³ *Id.* at 155.

¹⁷⁴ *Id.* at 160.

¹⁷⁵ *Id.* at 161.

¹⁷⁶ Zhang, *supra* note 171, at 162.

the ESA. In this case the ESA imposes costs but does not generate conservation benefits.¹⁷⁷

These findings are further supported by data showing that the rate and magnitude of reforestation investment is reduced due to the risk of land use regulation, such as that imposed under the ESA,¹⁷⁸ and that government incentive programs may alleviate the magnitude of these negative incentives.¹⁷⁹

A study of landowner responses to the listing of the endangered Preble's meadow jumping mouse in *Conservation Biology* provides still more empirical evidence that the ESA discourages private landowner cooperation with federal conservation efforts.¹⁸⁰ Amara Brook, Michaela Zint, and Raymond De Young surveyed owners of jumping mouse habitat and found that a significant number of landowners took actions to make their lands less hospitable to the mouse once it was listed as endangered.¹⁸¹ Although some landowners sought to improve the quality of the habitat on their land, the data suggested that "the efforts of landowners who acted to help the Preble's were cancelled by those who sought to harm it."¹⁸² This led the authors to conclude that "[t]he current regulatory approach to the conservation of rare species is insufficient to protect the Preble's mouse."¹⁸³ Particularly troublesome was their conclusion that "[a]s more landowners become aware that their land contains Preble's habitat, it is likely that the impact on the species may be negative."¹⁸⁴

The Brook, Zint, and De Young study further illustrates that the imposition of land use regulations can have a negative environmental effect.¹⁸⁵ Those landowners who undertook conservation activities did

¹⁷⁷ *Id.*

¹⁷⁸ Zhang & Flick, *supra* note 159, at 454 ("[L]andowners will reforest more slowly and invest less if they perceive that their lands will be subject to the ESA or any other similar regulations, and they will be more likely to reforest quickly and invest more if government financial assistance programs are available.").

¹⁷⁹ *Id.* ("This study shows that government financial assistance programs can be used to alleviate the disincentive provided by the ESA in reforestation investment.").

¹⁸⁰ Amara Brook, Michaela Zint & Raymond De Young, *Landowners' Responses to an Endangered Species Act Listing and Implications for Encouraging Conservation*, 17 CONSERVATION BIOLOGY 1638, 1638 (2003).

¹⁸¹ *Id.* at 1643.

¹⁸² *Id.*

¹⁸³ *Id.* at 1644.

¹⁸⁴ *Id.*

¹⁸⁵ Brook, Zint & De Young, *supra* note 180, at 1643, 1647. The authors note that their research may have underestimated the negative actions of landowners due to selection bias. In particular, the authors note that "nonrespondents may have been more worried

so in response to the species' listing. Given their support for environmental stewardship or other landowners, these landowners responded positively to the information that their land was important to an endangered species.¹⁸⁶ Unless one believes that there is widespread visceral hostility to endangered species, as such, those who took negative actions presumably did so due to the threat of regulation, and its economic consequences,¹⁸⁷ and not because of any animus toward Preble's meadow jumping mice.¹⁸⁸

A fourth recent study of uncompensated ESA regulation sought to measure "the extent to which landowners act to preempt regulation during the urban growth process" by accelerating the rate at which land is developed.¹⁸⁹ Economists John List, Michael Margolis, and Daniel Osgood focused on landowner responses to the threat of regulation of habitat for the cactus ferruginous pygmy owl near Tucson, Arizona, finding further evidence that ESA regulation accelerates the rate at which privately owned species habitat is developed.¹⁹⁰ Specifically, List, Margolis, and Osgood found that land designated as critical pygmy owl habitat was, on average, developed one year earlier than equivalent parcels that were not designated as habitat.¹⁹¹ This acceleration of development was facilitated, in part, because the pygmy owl was listed, and proposed critical habitat was published, months before regulatory responses were imposed, "allowing landowners ample time to re-

and fearful that participation, even though it was anonymous, could have negative consequences." *Id.* at 1642.

¹⁸⁶ See *id.* at 1639 (citing research showing that "information from sources with a conservation focus (e.g. wildlife agencies) has encouraged land conservation" and noting that landowners' individual values affect their land use practices and willingness to engage in conservation activities).

¹⁸⁷ *Id.* at 1647 (noting negative actions prompted by "economic concerns of agricultural landowners"); see also Morrow, *supra* note 3, at 227-30 (suggesting "rural anti-environmentalism" is a response to the imposition of land use regulations).

¹⁸⁸ As the experience of Ben Cone illustrates, some landowners would view species habitat as an asset were it not for the costs imposed by federal regulation. See *infra* notes 121-129 and accompanying text. But see Brook, Zint & De Young, *supra* note 180, at 1644 ("Because mice tend to be perceived as a nuisance . . . results may be different for species that are better liked.").

¹⁸⁹ John A. List, Michael Margolis & Daniel E. Osgood, *Is the Endangered Species Act Endangering Species?* 1-2 (Nat'l Bureau of Econ. Research, Working Paper No. 12777, 2006), available at <http://www.nber.org/papers/w12777>.

¹⁹⁰ *Id.* at 2.

¹⁹¹ *Id.* As with the other studies, the authors found some reasons why their analysis could underestimate the anticonservation incentives produced by ESA regulation. See *id.* at 16 n.15 (noting that some owners of owl habitat may have anticipated the subsequent invalidation of the critical habitat designation in federal court).

spend.”¹⁹² The findings of the pygmy owl study are reinforced by additional data showing that the value of undeveloped land designated as critical habitat fell relative to other land in the study area.¹⁹³

One potential criticism of the List, Margolis, and Osgood analysis is that it overstates the importance of critical habitat designations. Land modifications that could alter or destroy habitat, and thereby “harm” a listed species, are prohibited under section 9 regardless of whether a given parcel is designated “critical habitat.”¹⁹⁴ Habitat designations nonetheless provide information about the likelihood of a given land parcel’s being regulated.¹⁹⁵ So when a critical habitat designation is proposed and published in the *Federal Register*, it could well induce landowners to take preemptive action.¹⁹⁶

Although List, Margolis, and Osgood focused on the timing of development, it should be noted that government actions that encourage more rapid development can be expected to result in more development overall. For ecological purposes, the decision to develop land is largely irreversible.¹⁹⁷ Land that is not developed today can still be conserved or protected before it is developed tomorrow. Thus preventing—or, at least, avoiding creating incentives for—premature development is important to the ultimate goal of ecological conservation.

Most of the available evidence on the perverse incentives created by uncompensated land use restrictions focuses on the ESA.¹⁹⁸ This does not mean that other environmental regulations that limit or prohibit the development or productive use of ecologically valuable land do not induce the same sort of effects. For example, when North Carolina regulators proposed more stringent wetland drainage regulations in 1999, the rate of wetland drainage and development on private land increased dramatically, as landowners sought to act before the new rules came into effect.¹⁹⁹ In other cases, landowners have

¹⁹² *Id.* at 16.

¹⁹³ *Id.* at 25.

¹⁹⁴ See 16 U.S.C. §§ 1532(19); 1538 (2000).

¹⁹⁵ See *id.* § 1533(a) (3), (b) (6), (b) (8) (2000 & Supp. IV. 2004).

¹⁹⁶ See *id.* § 1533(b) (6).

¹⁹⁷ See Turnbull, *supra* note 7, at 369 (noting the irreversibility of improvements that impair or destroy habitat). This is not to deny the potential for ecological restoration, or the potential to recover developed lands within an ecological time frame. The point is that if a threatened species relies on a given land area, development effectively removes that land from the species’ potential habitat. Further, as is often noted, extinction is forever.

¹⁹⁸ See *supra* notes 164–197 and accompanying text.

¹⁹⁹ See Lueck & Michael, *supra* note 164, at 51.

sought to develop wetlands on private land before they are discovered by federal regulators.²⁰⁰

For years the federal government has sought to prevent landowners from taking actions to destroy, or facilitate the elimination of, wetland characteristics on private land so as to evade the permitting requirements under section 404 of the CWA. The so-called "Tulloch Rule," for example, prohibited the draining of wetlands so as to allow for their subsequent development.²⁰¹ The adoption of this regulation, and efforts to maintain the prohibition after the regulation was struck down in federal court, is evidence that federal regulators believe landowners will take actions to avoid the costs of federal wetlands regulations.

It is possible that wetlands conservation measures under section 404 may not produce the same level of preemptive destruction.²⁰² It is quite likely, however, that section 404 can discourage the voluntary creation and restoration of wetlands on private land much as the ESA discourages private creation and maintenance of species habitat.²⁰³ Federal wetland regulations apply equally to human-created and naturally formed wetlands. Private landowners have faced prosecution for altering artificially created wetlands without federal permits.²⁰⁴ As a consequence, there is no reason why federal wetland regulations would not discourage wetland creation and restoration on private land in

²⁰⁰ John Rapanos, for example, sought to destroy federally regulated wetlands without the knowledge of federal regulators. See *Rapanos v. United States*, 126 S. Ct. 2208, 2238–39 (2006) (Kennedy, J., concurring in the judgment).

²⁰¹ See Clean Water Act Regulatory Programs, 58 Fed. Reg. 45,008, 45,016, 45,035 (Aug. 25, 1993) (to be codified at 33 C.F.R. § 323.2 and 40 C.F.R. § 232.2) (adopting the "Tulloch Rule"). The rule was subsequently invalidated in federal court. See *National Mining Ass'n*, 145 F.3d at 1410. The Army Corps responded with a new "Tulloch Rule." See Further Revisions to the Clean Water Act Regulatory Definition of "Discharge of Dredged Material," 66 Fed. Reg. 4550, 4575 (Jan. 17, 2001) (to be codified at 33 C.F.R. § 323.2 and 40 C.F.R. § 232.2). This rule was also invalidated in federal court. See *Nat'l Ass'n of Home Builders v. U.S. Army Corps of Eng'rs*, No. 01-0274, 2007 WL 259944, at *4 (D.D.C. Jan. 30, 2007), *appeal dismissed sub nom.* *Nat'l Ass'n of Homebuilders v. Nat'l Wildlife Fed'n*, No. 07-5111, 2007 WL 1549109, at *1 (D.C. Cir. May 25, 2007).

²⁰² Thompson, *supra* note 3, at 296. Thompson notes three key differences between wetlands regulations and the ESA: the absence of an equivalent listing process, more visible application of wetlands regulations, and higher costs associated with the types of land modification activities required to preempt wetlands regulations as opposed to ESA regulations. *Id.*

²⁰³ See Bean, *supra* note 116, at 414 (noting that under the ESA, landowners have "no incentive to do the things that would make their lands a better place for imperiled species").

²⁰⁴ See, e.g., *Leslie Salt Co. v. United States*, 896 F.2d 354, 359–60 (9th Cir. 1990) (requiring a section 404 permit for the alteration of an artificially created seasonal wetland formerly used for salt manufacturing).

much the same fashion as the ESA discourages habitat creation and maintenance on such lands.²⁰⁵ Further, as noted below, the costs of federal wetland regulations certainly encourage political efforts to subvert or redirect regulatory efforts.²⁰⁶

D. *Compromising Scientific Research*

The perverse, anti-environmental incentives of uncompensated environmental land use regulation are not limited to the provision and maintenance of ecological services. The threat of land use regulation under statutes like the ESA also discourages private landowners from disclosing information and cooperating with scientific research on their land, further compromising species conservation efforts.²⁰⁷ As Professors Stephen Polasky and Holly Doremus observe, "The current ESA . . . gives landowners little incentive to cooperate with information collection activity. Under these conditions, both information collection and species conservation on private lands are likely to occur at less than optimal levels."²⁰⁸ Some landowners fear that the discovery of endangered or threatened species populations will result in the imposition of land use controls.²⁰⁹ Whereas regulators need greater information about the status and location of endangered species and their habitat, property owners fear the disclosure of such information could lead to costly regulation.²¹⁰ Perhaps as a consequence, most research on endangered species occurs on government land, despite the importance of private land for species preservation.²¹¹

²⁰⁵ Along the same lines, there is also evidence that historical preservation regulations, which impose similar types of land use restrictions, can also discourage voluntary preservation efforts. See William A. Fischel, *Lead Us Not into Penn Station: Takings, Historic Preservation, and Rent Control*, 6 *FORDHAM ENVTL. L.J.* 749, 754 (1995) (noting "landlords will begin hiring mediocre architects or asking good architects to design mediocre buildings that will not be landmarked").

²⁰⁶ See *infra* notes 306–336 and accompanying text.

²⁰⁷ See *infra* notes 208–225 and accompanying text.

²⁰⁸ Polasky & Doremus, *supra* note 6, at 41; see also Hilty & Merenlender, *supra* note 3, at 133.

²⁰⁹ Hilty & Merenlender, *supra* note 3, at 136; see also Morrow, *supra* note 3, at 194 (noting that even those ranchers who support endangered species conservation are reluctant to inform federal agencies about populations on their land).

²¹⁰ Polasky & Doremus, *supra* note 6, at 23 ("[U]nder current conservation rules, information is a prerequisite to regulation. Therefore, as a result, property owners and regulators have sharply divergent views of the desirability of increased information about species status and distribution.").

²¹¹ See Hilty & Merenlender, *supra* note 3, at 133.

Information about land's ecological characteristics is inherently decentralized, existing in the land itself until it is discovered, and remaining localized until it is collected and distributed. Furthermore, landowners have private information about habitat value that is unavailable to government regulators without landowner cooperation.²¹² The current regulatory system, insofar as it relies upon uncompensated controls on private land use, gives landowners no incentive to cooperate with wildlife conservationists.²¹³ To the contrary, as noted by Professor Barton Thompson, current law gives landowners "an incentive to conceal information about endangered species that might lead to tighter regulation and to preclude government scientists and officials from surveying their property."²¹⁴ Just as it discourages habitat conservation on private land, ESA section 9 creates perverse incentives for landowners to suppress information about the presence of endangered species on their lands in order to avoid regulation.²¹⁵ One consequence is that current projections may underestimate the presence of endangered species on private lands.²¹⁶

The lack of more complete data on endangered species and their habitat complicates species conservation efforts.²¹⁷ In some cases, a private landowner might be the only person who knows a listed species is on their land.²¹⁸ This information asymmetry makes government ef-

²¹² Lueck & Michael, *supra* note 164, at 34; see also Christopher S. Elmendorf, *Ideas, Incentives, Gifts, and Governance: Toward Conservation Stewardship of Private Land*, in *Cultural and Psychological Perspective*, 2003 U. ILL. L. REV. 423, 432 ("Rural landowners may find it difficult to monitor their property, but they have it easier than the federal government."); George F. Wilhere, *Adaptive Management in Habitat Conservation Plans*, 16 CONSERVATION BIOLOGY 20, 23 (2001).

²¹³ Jason F. Shogren et al., *Why Economics Matters for Endangered Species Protection*, 13 CONSERVATION BIOLOGY 1257, 1260 (1999) ("On private land, the government needs landowner cooperation to gain the information necessary to administer conservation policy, yet landowners may have been able to escape regulation by hiding information from the government. If so, conservation policy may need to use the carrot of compensation rather than the stick of permits and fines to elicit information.").

²¹⁴ Barton H. Thompson Jr., *Protecting Biodiversity Through Policy Diversity*, 38 IDAHO L. REV. 355, 364 (2001).

²¹⁵ Robert Bonnie, *Endangered Species Mitigation Banking: Promoting Recovery Through Habitat Conservation Planning Under the Endangered Species Act*, 240 SCI. TOTAL ENV'T 11, 13 (1999).

²¹⁶ See Wilcove & Lee, *supra* note 3, at 640 (noting likely underestimate due to "the reluctance of many private landowners to cooperate with surveys for endangered species").

²¹⁷ See Jason F. Shogren et al., *The Role of Private Information in Designing Conservation Incentives for Property Owners*, in *SPECIES AT RISK: USING ECONOMIC INCENTIVES TO SHELTER ENDANGERED SPECIES ON PRIVATE LANDS* 217, 217 (Jason F. Shogren ed., 2005) (noting that "imperfect information" complicates conservation efforts).

²¹⁸ *Id.*

forts to conserve species on private land particularly difficult.²¹⁹ In fact, as the species conservation value of a given parcel of land increases, so does the need for accurate information about its ecological condition. Therefore, the potential negative consequences of uncompensated land use controls may be the highest for land in the greatest need of protection.²²⁰

Brook, Zint, and De Young found evidence that such incentives are significant.²²¹ Specifically, they found that most landowners would refuse to give biologists permission to conduct research on their land to assess endangered mouse populations, out of fear that land use restrictions would follow the discovery of a mouse on their land: "Many landowners appeared to defend themselves against having their land-management options restricted by refusing to allow surveys for the Preble's [mouse]." ²²² Yet such data is essential to the development of effective species recovery plans.²²³

Thus, the incentives against habitat conservation created by federal land use regulation are compounded by the incentives against allowing scientific research on private land. Together, these incentives discourage private landowners from participating in conservation banking, biological surveys, and other efforts to facilitate private land conservation.²²⁴ Landowners "fear that investigating opportunities will reveal previously unrecognized endangered species and, in the event that a bank is not established, result in increased enforcement of the

²¹⁹ See Thompson, *supra* note 99, at 315; see also James Salzman, *Creating Markets for Ecosystem Services: Notes from the Field*, 80 N.Y.U. L. REV. 870, 916 (2005) (noting information asymmetry between government regulators and private landowners). The difficulty of obtaining information from private landowners may be compounded by the FWS reluctance to encourage public participation in the habitat conservation planning process. See Alejandro Esteban Camacho, *Can Regulation Evolve? Lessons from a Study in Maladaptive Management*, 55 UCLA L. REV. 293, 317 (2007).

²²⁰ See Shogren et al., *supra* note 217, at 224.

²²¹ Brook, Zint & De Young, *supra* note 180, at 1644.

²²² *Id.*

²²³ *Id.* ("Without this information, formulating conservation plans is difficult, and those that are formed may be inaccurate, perceived as illegitimate, or challenged in the courts because of a lack of supporting data.").

²²⁴ See Polasky & Doremus, *supra* note 6, at 28 ("Congress has regularly barred the use of federal funds to conduct biological surveys of private property without consent, even going so far as to prohibit federal funding on aerial surveys unless requested by the landowner."); see also DeLONG, *supra* note 134, at 104 (noting how property rights concerns blocked legislative authorization of the National Biological Survey); Frederic H. Wagner, *Whatever Happened to the National Biological Survey?*, 49 BIOSCIENCE 219, 220 (1999) (same).

ESA.²²⁵ This discourages landowners from even investigating the possibility of participating in such conservation programs.

E. *Failing to Save Species*

The perverse incentives created by uncompensated land use regulations may explain the ESA's poor record of conserving endangered and threatened species on private land.²²⁶ There is no debate that habitat loss is the primary threat to endangered species.²²⁷ It is now widely acknowledged that the ESA's traditional approach to regulation, based on land use restrictions, has failed to attain the core objectives of species conservation and recovery.²²⁸ The ESA was adopted in 1973, with broad bipartisan support.²²⁹ Since then, relatively few species listed as threatened or endangered have improved to the point of delisting.²³⁰ Economists Joe Kirkvliet and Christian Langpap have noted, for example, that the aim of species recovery "has been reached in distressingly few cases."²³¹ Those species that have improved do not appear to have benefited much from the ESA's primary regulatory provisions.²³² Indeed it is possible that there is not a single endangered species that has had its condition improve on private land due to the ESA.

If endangered species habitat is not preserved on private land, many endangered species will not survive. Ecologist David Wilcove explains, "[H]abitat destruction and degradation are by far the leading

²²⁵ Jessica Fox & Anamaria Nino-Murcia, *Status of Species Conservation Banking in the United States*, 19 CONSERVATION BIOLOGY 996, 1006 (2005).

²²⁶ See *infra* notes 227–243 and accompanying text.

²²⁷ David S. Wilcove et al., *Quantifying Threats to Imperiled Species in the United States*, 48 BIOSCIENCE 607, 607 (1998) (stating that "scientists agree that habitat destruction is the primary lethal agent"); *id.* at 609 (finding that habitat destruction and degradation contributed to the endangerment of eighty-five percent of species analyzed).

²²⁸ Langpap & Wu, *supra* note 151, at 436.

²²⁹ See Pub. L. No. 93-205, 87 Stat. 884–903 (codified as amended at 16 U.S.C. §§ 1531–1544 (2000 & Supp. IV 2004)).

²³⁰ See Robbyn J. F. Abbutt & J. Michael Scott, *Examining Differences Between Recovered and Declining Endangered Species*, 15 CONSERVATION BIOLOGY 1274, 1275 (2001); Robert E. Gordon, Jr. et al., *Conservation Under the Endangered Species Act*, 23 ENV'T INT'L 359, 359 (1997); Ike C. Sugg, *Caught in the Act: Evaluating the Endangered Species Act, Its Effects on Man and Prospects for Reform*, 24 CUMB. L. REV. 1, 42–44 (1993).

²³¹ Joe Kirkvliet & Christian Langpap, *Learning from Endangered and Threatened Species Recovery Programs: A Case Study Using U.S. Endangered Species Act Recovery Scores*, 63 ECOLOGICAL ECON. 499, 500 (2007).

²³² Sugg, *supra* note 230, at 42–44. It is worth noting that many of the alleged "successes" of the ESA involve species that were either never in danger of extinction or were helped by exogenous factors. See *id.* (discussing the examples of the Palau dove, Palau fantail flycatcher, Palau owl, Rydberg milk-vetch, and American alligator).

threats to biodiversity, contributing to the endangerment of at least eighty-eight percent of the plants and animals on the endangered species list.²³³ Yet the ESA and other regulatory measures have not been particularly effective at preserving habitat on private land.²³⁴ As documented above, one reason for this is that an environmental regulatory scheme that ignores landowners' responses to economic incentives is unlikely to achieve its goals.²³⁵ Moreover, even strong advocates of regulatory measures to protect endangered species habitat acknowledge that "[n]o one . . . suggests that the federal ESA is realizing Congressional intent or that it has been implemented rationally or responsibly."²³⁶ As noted biologist E.O. Wilson explained, private landowners are "deathly afraid of . . . losing their personal property rights [due to environmental regulation]. . . . So the secret—and it's not a secret—lies in providing incentives for people whose property contains endangered species."²³⁷

There are many species that rely upon private land and are not effectively protected. According to Michael Bean, "We have too many cases like [the red-cockaded woodpecker], where a species is listed for years, but the population continues to go straight down the tubes in spite of this allegedly stringent and restrictive law."²³⁸ Indeed, conservation experts note that "species that occur exclusively on non-federal lands (the majority of which are in private ownership) appear to be faring considerably worse than species reliant upon the federal land base."²³⁹

Under the Clinton administration, the FWS adopted various policies, including "Safe Harbor" and "No Surprises," intended to counter the perverse incentives created by uncompensated habitat restric-

²³³ David S. Wilcove, *The Promise and the Disappointment of the Endangered Species Act*, 6 N.Y.U. ENVTL. L.J. 275, 277–78 (1998).

²³⁴ Main et al., *supra* note 119, at 1263 ("Regulatory mechanisms such as the U.S. Endangered Species Act of 1973 (ESA) are controversial and have not been particularly effective at preventing the loss of wildlife habitat, especially on private lands.").

²³⁵ Shogren et al., *supra* note 213, at 1258 ("[T]he consistent exclusion of economic behavior in the calculus of endangered species protection has led to ineffective and, in some instances, counterproductive conservation policy.").

²³⁶ Lynn E. Dwyer et al., *Property Rights Case Law and the Challenges to the Endangered Species Act*, 9 CONSERVATION BIOLOGY 725, 736 (1995).

²³⁷ Bill McKibben, *More than a Naturalist*, AUDUBON, Jan.–Feb. 1996, at 92, 94–95.

²³⁸ See Rudy Abramson, *Wildlife Act: Shield or Sword?*, L.A. TIMES, Dec. 14, 1990, at A1. Despite this problem, Bean rejects the claim that the ESA is a "failure." See William & Mary Symposium, *supra* note 87, at 756 (comments of Michael Bean).

²³⁹ Robert Bonnie, *Endangered Species Mitigation Banking: Promoting Recovery Through Habitat Conservation Planning Under the Endangered Species Act*, 240 SCI. TOTAL ENV'T 11, 12 (1999).

tions.²⁴⁰ As Professor Thompson explains, however, "the uncertainty and distrust created by prior ESA implementation has hindered the government's attempts" to garner landowner participation in these programs.²⁴¹ He further suggests that "[a]bsent broader compensation than is provided today, even a proactive scheme is likely to encounter evasive habitat destruction, since such a scheme would not eliminate the incentive to destroy habitat, but simply narrow the window of opportunity."²⁴² "Safe harbor" agreements and the like can only do so much. According to Professor Epstein, "[T]hese covenants are not universal in scope, and they require confidence that they will be respected over time when the remedies for government breach are uncertain at best. Absent strong ownership rights, the unmistakable incentive remains: destroy habitat now in order to preserve freedom of action later."²⁴³

III. PERVERSE INCENTIVES FOR GOVERNMENT AGENCIES

The anti-environmental effects of uncompensated environmental land use regulations are not limited to the effects of such measures on private landowners. The lack of a compensation requirement also affects the incentives faced by government agencies.²⁴⁴ Specifically, the lack of a compensation requirement creates incentives for government agencies to adopt suboptimal conservation strategies and creates political distortions that further frustrate the achievement of environmental goals.²⁴⁵

Regulators and government bureaucrats are economic actors as much as anyone else, in that they respond to changes in economic incentives on the margin. As a consequence, changes in economic incentives can influence the behavior of government agencies.²⁴⁶ The reactions of government agencies to changes in incentives may be more complicated to model and predict than those of private firms,²⁴⁷ but

²⁴⁰ Thompson, *supra* note 99, at 322; John H. Cushman, Jr., *The Endangered Species Act Gets a Makeover*, N.Y. TIMES, June 2, 1998, at G2 (describing Habitat Conservation Plans and "no surprises" agreements).

²⁴¹ Thompson, *supra* note 99, at 322.

²⁴² *Id.* at 354.

²⁴³ Epstein, *supra* note 34, at 33.

²⁴⁴ See *infra* notes 246-336 and accompanying text.

²⁴⁵ See *infra* notes 246-336 and accompanying text.

²⁴⁶ See Terry L. Anderson, *The New Resource Economics: Old Ideas and New Applications*, 64 AM. J. AGRIC. ECON. 928, 932 (1982) (noting that government bureaucrats, like private individuals, face tradeoffs when seeking to maximize their objective function).

²⁴⁷ See generally Daryl J. Levinson, *Making Government Pay: Markets, Politics, and the Allocation of Constitutional Costs*, 67 U. CHI. L. REV. 345 (2000) (applying public choice models to

this does not mean the effects of such incentives can be ignored. Legal changes that alter the incentives faced by agency personnel will alter the agency's behavior.²⁴⁸

When government agencies impose conservation restrictions on private land without paying compensation, they create an incentive for private landowners to eliminate, or at least not to invest in, ecological amenities on their land.²⁴⁹ At the same time, when government agencies are not required to pay for the costs of such regulatory controls, such measures are underpriced relative to available alternatives, and regulators are likely to overrely on land use controls.²⁵⁰ The resulting perversities are two-fold. As Professors Andrew Morris and Richard Stroup explain, the federal government simultaneously "seizes more property rights than it needs to protect a given habitat" while providing "too little habitat protection over all, as the government avoids the political costs of the ESA by dragging its feet on actions such as listing species."²⁵¹

The lack of a compensation requirement also distorts the political costs and benefits of agency action in other ways that may further undermine conservation goals.²⁵² Those who seek to affect agency policy are forced to invest in manipulating the political costs and benefits to agency personnel.²⁵³ The off-budget nature of uncompensated regulations further reduces the transparency of conservation policy and may undermine political accountability and public oversight of agency action, to the potential detriment of environmental conservation.²⁵⁴

A. "Fiscal Illusion"

The idea of "fiscal illusion" is that environmental land use regulations often enable the government to obtain the benefits of land acquisition without bearing the full cost of such actions. Therefore, the government acts under the "illusion" that land use controls are less costly

government behavior to demonstrate that government cannot be expected to respond to forced financial outflows like a profit-maximizing firm).

²⁴⁸ See *infra* notes 292–305 and accompanying text.

²⁴⁹ See *supra* notes 87–206 and accompanying text.

²⁵⁰ See *infra* notes 255–280 and accompanying text.

²⁵¹ Andrew P. Morris & Richard L. Stroup, *Quartering Species: The "Living Constitution," the Third Amendment, and the Endangered Species Act*, 30 ENVTL. L. 769, 789 (2000).

²⁵² See *infra* notes 306–336 and accompanying text.

²⁵³ See *infra* notes 306–336 and accompanying text.

²⁵⁴ See *infra* notes 306–336 and accompanying text.

than they actually are.²⁵⁵ When a government agency seeks to advance conservation values by purchasing lands, acquiring nonpossessory property interests, or providing technical assistance or monetary incentives, it must pay for such measures. When the same agency seeks to advance conservation by imposing regulatory limits on private land use, however, no payment is required. The economic costs of such regulations borne by the landowners are "off-budget expenditures."²⁵⁶ Professor William Fischel notes that, as a consequence, there is little assurance that the government "will truly value the resources it takes from the private sector"²⁵⁷—particularly as compared to those resources that are accounted for within agency budgets.²⁵⁸

Insofar as the lack of a compensation requirement means that an agency does not bear the full costs of imposing land use restrictions on private land, such measures will be "underpriced" as compared with those policy options for which the agency will be financially responsible. The lack of a compensation requirement creates the "fiscal illusion" that the measures cost less than they actually do because the costs are not borne by the decision-making agency.²⁵⁹ Because land use controls are underpriced, they will be "overconsumed." Environmental agencies will rely upon land use regulations in lieu of alternatives—such as land purchases, conservation easements, banking, technical assistance, and incentive programs—more than would be optimal.

Where expenditures are on budget, funds must be appropriated by the legislature and, insofar as legislatively authorized, agencies must allocate funds to competing agency priorities and programs. The adoption of land use controls, such as are authorized under section 9 of the ESA or section 404 of the CWA, does not impose additional costs on

²⁵⁵ FISCHEL, *supra* note 96, at 206. William Fischel defines "fiscal illusion" as "the systematic underestimating of costs by government decision makers when full compensation does not have to be paid." *Id.*

²⁵⁶ Thompson, *supra* note 3, at 288.

²⁵⁷ FISCHEL, *supra* note 96, at 144 (citing Louis De Alessi, *Implications of Property Rights for Government Investment Choices*, 59 AM. ECON. REV. 13 (1969)).

²⁵⁸ The failure to account for private costs is not simply a "mistake" by the government. Indeed, it may be a deliberate consequence of majoritarian decision making, as political majorities (or influential interest groups) impose the costs of their preference for land conservation on a minority of landowners. See FISCHEL, *supra* note 96, at 206. This argument responds to the claim that the government is just as likely to underestimate the benefits of regulatory actions as it is to underestimate the costs of such actions. See *id.*

²⁵⁹ See, e.g., Lawrence Blume & Daniel L. Rubinfeld, *Compensation for Takings: An Economic Analysis*, 72 CAL. L. REV. 569, 620–22 (1984).

agencies.²⁶⁰ As a result, agencies are likely to "overinvest" in such measures. In effect, the underpricing of land use controls leads to their overuse compared to other conservation policy alternatives.²⁶¹ As viewed from the agency perspective, land use control is "free," but alternatives are not. Much as conscription resulted in the military's overreliance on labor as a factor input, a no-compensation rule encourages the government to overuse land use controls as an input into environmental conservation.²⁶² This is not meant to diminish the importance of land use control in environmental conservation, but only to note that it can be overused like any factor input.

Fiscal illusion is a problem insofar as it prevents government agencies from considering the trade-offs inherent in environmental policy. As Professors Morriss and Stroup observe:

Unlike private land managers, government biologists face no opportunity costs to their decisions to place restrictions on the use of private land Because they are not required to compensate a private landowner for reducing the value of the landowner's property, they need not consider the value of the alternative uses of the land. Indeed, the [Endangered Species] Act forbids such considerations.²⁶³

Environmentalist organizations and citizen groups are likely to suffer from fiscal illusion as well. Such groups often sue federal agencies to force greater regulation of private land.²⁶⁴ Such suits can trigger regulatory action and limits on private land use, but this does not come at the expense of other conservation measures. Just as regulators can be ex-

²⁶⁰ Certainly the adoption or enforcement of regulatory measures entails *some* costs, in terms of personnel time and other agency resources. Such costs are involved in *any* agency action. The point here is that the agency is not bearing the economic cost of the policy measure itself, only the costs of implementing or adopting *any* policy measure.

²⁶¹ Cf. Gary D. Libecap, Book Review, 24 J. ECON. LITERATURE 730, 731 (1986) (reviewing WILLIAM A. FISCHER, *THE ECONOMICS OF ZONING LAWS: A PROPERTY RIGHTS APPROACH TO AMERICAN LAND USE CONTROLS* (1985)) (arguing that compensation rules "affect the substitution between land and other inputs").

²⁶² William A. Fischer, *The Political Economy of Just Compensation: Lessons from the Military Draft for the Takings Issue*, 20 HARV. J.L. & PUB. POL'Y 23, 24 (1996); Robert D. Tollison, *A Comment on Economic Analysis and Just Compensation*, 12 INT'L REV. L. & ECON. 139, 140 (1992).

²⁶³ Morriss & Stroup, *supra* note 251, at 788-89.

²⁶⁴ See, e.g., *Ctr. for Biological Diversity v. Hamilton*, 453 F.3d 1331, 1331 (11th Cir. 2006) (suit to require designation of critical habitat for two species of minnows); *Ctr. for Biological Diversity v. U.S. Fish & Wildlife Serv.*, 450 F.3d 930, 933-34 (9th Cir. 2006) (suit alleging that FWS violated the ESA by failing to designate critical habitat for an endangered fish species).

pected to overuse land use regulation as compared to other conservation measures, environmentalist groups can be expected to seek the imposition of such measures more than would be optimal. This is because they do not bear the opportunity costs of conservation, and because the existing regulatory structure does not provide public interest organizations with equivalent means of triggering alternative conservation measures.²⁶⁵ Even an organization that seeks to ensure the optimal use of resources can suffer from fiscal illusion because the "off-budget" nature of land use regulations.

The by-now familiar case of *Lucas v. South Carolina Coastal Council*, which the U.S. Supreme Court decided in 1992, is a good example of how regulatory agencies can suffer from "fiscal illusion."²⁶⁶ The story illustrates that when agencies do not bear the costs of their regulatory measures, they have a more difficult time identifying whether a given land use control is worthwhile.²⁶⁷

After David Lucas purchased two beachfront lots on the South Carolina coast, the state legislature adopted a new Beachfront Management Act and created a coastal regulatory agency, the South Carolina Coastal Council.²⁶⁸ Although there were homes on either side of each of his lots, the Council denied Lucas permission to make similar use of his land, claiming the addition of two homes along the coast would threaten significant public harm.²⁶⁹ Upset with the Council's decision, Lucas sued.²⁷⁰

Lucas' challenge to the Council's regulatory restrictions as uncompensated takings of his land was ultimately successful.²⁷¹ The U.S. Supreme Court held that unless the development restrictions could be justified as inhering in the title to the land itself, the prohibition amounted to a taking under the Fifth Amendment.²⁷² In such cases, the Court observed, there is a particular risk that government-imposed

²⁶⁵ See Jonathan H. Adler, *Stand or Deliver: Citizen Suits, Standing, and Environmental Protection*, 12 DUKE ENVTL. L. & POL'Y F. 39, 58-64 (2001) (discussing how citizen suit enforcement of environmental laws can lead to suboptimal overenforcement).

²⁶⁶ See generally 505 U.S. 1003 (1992).

²⁶⁷ See *infra* notes 268-280 and accompanying text.

²⁶⁸ See James R. Rinehart & Jeffrey J. Pompe, *The Lucas Case and the Conflict over Property Rights*, in LAND RIGHTS: THE 1990s' PROPERTY RIGHTS REBELLION, *supra* note 65, at 67, 77; see also Been, *supra* note 65, at 228-30.

²⁶⁹ Rinehart & Pompe, *supra* note 268, at 68, 77.

²⁷⁰ *Lucas*, 505 U.S. at 1009.

²⁷¹ *Id.* at 1031-32.

²⁷² *Id.* at 1027-29.

land use controls are, in actuality, efforts to produce public benefits at private expense.²⁷³ As Justice Scalia noted in his opinion for the Court,

[R]egulations that leave the owner of land without economically beneficial or productive options for its use—typically, as here, by requiring land to be left substantially in its natural state—carry within them a heightened risk that private property is being pressed into some form of public service under the guise of mitigating serious public harm.²⁷⁴

After additional legal skirmishing over damages, the South Carolina Coastal Council agreed to purchase the lots for \$1.5 million.²⁷⁵ Yet once the Council was required to pay for the land upon which it sought to prohibit development, it determined that prohibition was not so important after all, promptly selling the property for development.²⁷⁶ Large houses were subsequently built on each lot, amidst the row of houses that already occupied the beachfront block.²⁷⁷

As the owner of the lots, the state now bore the costs of its decisions as to how the land would be used. The Council was no longer operating under the “illusion” that its actions were cost-free, and its behavior changed accordingly.²⁷⁸ The resources necessary to prevent development of two beachfront lots on an already developed beachfront could better serve the Council’s conservation mission if devoted to some other purpose. As one state official explained, “We felt that we had an obligation to offer the property to the public and get the highest price.”²⁷⁹ Even those who defended the Council’s regulations acknowledged that this decision “opens the state to charges of hypocrisy when it is willing to have an economic burden fall on an individual but not when the funds have to come out of an agency’s budget.”²⁸⁰

Some critics of the “fiscal illusion” argument suggest that “the common view of takings payments as an instrument to deter excessive regulation depends upon important implicit and, upon examination,

²⁷³ *Id.* at 1018.

²⁷⁴ *Id.*

²⁷⁵ Rinehart & Pompe, *supra* note 268, at 82.

²⁷⁶ *Id.*

²⁷⁷ Been, *supra* note 65, at 239 (noting a five bedroom house was built on one lot, a four bedroom house on the other).

²⁷⁸ See *id.*; Rinehart & Pompe, *supra* note 268, at 82.

²⁷⁹ Rinehart & Pompe, *supra* note 268, at 82; cf. Been *supra* note 65, at 239–40 (providing a slightly different account of the *Lucas* aftermath).

²⁸⁰ H. Jane Lehman, *Case Closed: Settlement Ends Property Rights Lawsuit*, CHI. TRIB., July 25, 1993, at 3G (quoting John Echeverria, then of the National Audubon Society).

implausible assumptions regarding the incentives regulators face.”²⁸¹ Specifically, “regulators are not independent principals; they make policy decisions at the behest of environmentalists and property owners affected by such decisions.”²⁸² Others claim that “[t]he notion that governments must be forced to pay compensation to ensure that they enact only efficient regulation implicitly assumes that government actors are the equivalent of rational profit-maximizing firms.”²⁸³ Not necessarily. Requiring compensation as a means to ensure more efficient and better informed agency decisions only assumes that government actors respond to changes in incentives on the margin.

Most critiques of “fiscal illusion” adopt the wrong standard of measure, making the perfect the enemy of the good.²⁸⁴ The relevant policy question is not whether a given policy reform will result in the paradigmatic efficient outcome. Such outcomes only exist in theoretical models. Rather, the question is whether, given realistic assumptions, a specific reform will move policy in a preferable direction.²⁸⁵ The suggestion here is simply that requiring compensation to be paid by the agency responsible for the land use restriction will improve the agency decision-making process on the margin.²⁸⁶

Professor Daniel Farber suggests that “if we adopt a public interest theory of government, internalizing a cost makes no difference,” because “[p]ublic-spirited policymakers would take into account all the costs and benefits” of government action irrespective of whether those costs are borne by the government.²⁸⁷ Yet this is only the case if one assumes away many of the problems that even the most public-spirited government actors will face in policy development and implementation. Among the most serious of these difficulties is the information

²⁸¹ Timothy J. Brennan & James Boyd, *Political Economy and the Efficiency of Compensation for Takings*, 24 CONTEMP. ECON. POL’Y 188, 200 (2006).

²⁸² *Id.* at 190.

²⁸³ Vicki Been & Joel C. Beauvais, *The Global Fifth Amendment? NAFTA’s Investment Protections and the Misguided Quest for an International “Regulatory Takings” Doctrine*, 78 N.Y.U. L. REV. 30, 92 (2003).

²⁸⁴ See, e.g., *id.*; Brennan & Boyd, *supra* note 281, at 200.

²⁸⁵ See Harold Demsetz, *Information and Efficiency: Another Approach*, 12 J.L. & ECON. 1, 1 (1969) (noting policy choice is not between “ideal” and “existing imperfect” institutional arrangements, but between competing “real” institutional arrangements). See generally NEIL K. KOMESAR, *IMPERFECT ALTERNATIVES: CHOOSING INSTITUTIONS IN LAW, ECONOMICS, AND PUBLIC POLICY* (1994) (offering a critique of law and public policy analysis that poorly executes institutional comparison).

²⁸⁶ See, e.g., Polasky & Doremus, *supra* note 6, at 42 (“An advantage of a compensation approach is that it improves the outcome when regulators suffer from fiscal illusion.”).

²⁸⁷ Daniel A. Farber, *Public Choice and Just Compensation*, 9 CONST. COMMENT. 279, 288 (1992).

problem. Government agencies face tremendous difficulty in accumulating and processing all of the information relevant to centralized policy decisions.²⁸⁸ Fiscal illusion exacerbates this problem by distorting the price signals that can help inform the agency's judgment.

The problem of "fiscal illusion" is not dependent on the assumption that "the regulator is nonbenevolent," as some claim.²⁸⁹ Rather, it is dependent only upon the assumption that even the best intentioned regulators have limited capacities and will, on the margin, be influenced by changes in the costs and benefits of given actions. This proposition *should* be indisputable.²⁹⁰ When one recognizes that even well-intentioned and proficient regulators will suffer from information problems and other government failures, the likelihood of some amount of "fiscal illusion" increases greatly.²⁹¹ Indeed, insofar as some costs of government action are off-budget, this increases the information problem for agencies.

To truly calculate the costs and benefits of a given government project, the government decisionmaker needs access to information about the preferences and circumstances of all those who are going to be affected by the decision. In practice, no government agency has access to such information, nor could it.²⁹² A compensation mechanism can lessen this problem insofar as the potential for compensation facilitates the generation of prices that are an important and effective means of transmitting dispersed information about costs and benefits in the marketplace.²⁹³ Requiring compensation does not completely cure the information problem, to be sure, but it does reduce it at the margin. Further, as economist Robert Tollison observes,

²⁸⁸ F.A. Hayek, *The Use of Knowledge in Society*, 35 AM. ECON. REV. 519, 519 (1945) (noting that knowledge required for many planning decisions is dispersed and "never exists in concentrated or integrated form").

²⁸⁹ See, e.g., Polasky & Doremus, *supra* note 6, at 42 ("Fiscal illusion, however, assumes that the regulator is nonbenevolent, i.e., that the regulator has goals other than maximizing social welfare or efficiency.")

²⁹⁰ See Epstein, *supra* note 34, at 18 ("The public choice problems associated with administrative agencies have been sufficiently well documented that one does not need a great imagination to know that the maximization of agency influence and power does not coincide perfectly with the maximization of social welfare."). See generally WILLIAM A. NISKANEN, *POLICY ANALYSIS AND PUBLIC CHOICE: SELECTED PAPERS BY WILLIAM A. NISKANEN* (2004); JAMES Q. WILSON, *BUREAUCRACY: WHAT GOVERNMENT AGENCIES DO AND WHY THEY DO IT* (1989) (describing agency behavior).

²⁹¹ See Hayek, *supra* note 288, at 519.

²⁹² See *id.*

²⁹³ CHRISTOPHER THOMAS & S. CHARLES MAURICE, *MANAGERIAL ECONOMICS* 86-87 (8th ed. 2005) (describing the importance of marginal analysis).

The market for alternative uses of land is highly efficient A compensation policy basically insures that land prices will not be distorted by government projects and that government will face relevant market prices for its land acquisitions. Thus, compensation allows private markets in land to work efficiently, conveying the correct information about opportunity cost to investors and so forth. A no-compensation policy would lower the price of land throughout the economy and inject uncertainty into the process of investing in real property.²⁹⁴

Critics of "fiscal illusion" argue that the theory is dependent upon the government treating "a requirement to pay compensation as a cost to itself rather than to the taxpayers who support it. In practice, of course, the costs of compensation are borne by taxpayers, not the regulators who actually make decisions."²⁹⁵ Taxpayers, the argument continues, may not be particularly responsive to the marginal increase or reallocation of government spending caused by a compensation requirement. As Professor Farber points out: "Taxpayers are an extremely large, diffuse group. History provides little reason to think they will be a powerful political force in resisting small increases in government spending."²⁹⁶ In sum, the money required to compensate landowners for the consequences of environmental land use regulation is easily lost in the federal budget, such that no taxpayer will feel the consequence.²⁹⁷

Indeed, the discipline imposed on regulatory agencies derives less from the political opposition of taxpayers than from the agency's own desire to command resources to achieve its goals.²⁹⁸ Regulatory agencies have set budgets. As a result, they *will* feel the consequences of being required to pay compensation if it places a constraint on their activities. Insofar as a compensation requirement forces an agency to consider trade-offs in resource allocation that it did not have to consider in the past, it can be expected to weigh the opportunity costs of different conservation strategies.²⁹⁹ It can also facilitate greater oversight of agency behavior, as placing the costs of regulatory controls "on

²⁹⁴ Tollison, *supra* note 262, at 139. Insofar as a no-compensation rule does lower land prices, however, it will lower the cost to land trusts and other nonprofit conservation organizations of purchasing conservation easements and other interests in land.

²⁹⁵ Brennan & Boyd, *supra* note 281, at 190–91.

²⁹⁶ Farber, *supra* note 287, at 292–93.

²⁹⁷ See *id.*; see also Brennan & Boyd, *supra* note 281, at 190–91.

²⁹⁸ See Anderson, *supra* note 246, at 932.

²⁹⁹ See Morriss & Stroup, *supra* note 251, at 788–89.

budget" makes it easier to evaluate how an agency is expending its resources.

Although the empirical evidence of "fiscal illusion" is not as robust as that demonstrating the perverse incentives created by uncompensated takings under section 9 of the ESA,³⁰⁰ observed agency behavior supports the claim. There is no statutory requirement that the FWS provide compensation, nor have landowners brought successful challenges to land use restrictions under section 9 of the ESA in federal court.³⁰¹ Moreover, there are various procedural obstacles to bringing successful takings challenges under the ESA, including the FWS's reluctance to issue a final determination on whether a proposed use of land will violate the ESA.³⁰²

As Professor Thompson notes, a review of "Takings Implication Assessments" conducted by the FWS "suggests that the FWS does not believe current takings law significantly constrains their actions under the ESA."³⁰³ It also appears that private landowners are aware of the long odds against a successful takings claim under the ESA.³⁰⁴ Worse, the government has no incentive—if even the ability—to make trade-offs when implementing current policy. Under the ESA, "there is no explicit recognition of relative costs and benefits A species with high economic cost of recovery and possibly low economic benefits has the same standing as a species with palpably large economic benefits and small costs."³⁰⁵ Similarly, if the FWS declines to regulate one area, this does not release resources that can be devoted to a more pressing conservation priority. Therefore the FWS has no incentive to consider the alternative ways of allocating agency resources to maximize attainment of the agency's overall conservation objectives because some inputs are under-

³⁰⁰ See *infra* notes 301–305 and accompanying text.

³⁰¹ Heyman, *supra* note 9, at 162. The only successful takings claims have involved ESA restrictions on water rights. See, e.g., *Tulare Lake Basin Water Storage Dist. v. United States*, 49 Fed. Cl. 313, 319–20 (Fed. Cl. 2001). In some cases, the federal government has settled cases in which property owners appeared to have potentially meritorious takings claims. See, e.g., 62 Fed. Reg. 54,121, 54,122 (Oct. 17, 1997) (granting an incidental take permit to Ben Cone); Albert Gidari, *The Economy of Nature, Private Property, and the Endangered Species Act*, 6 FORDHAM ENVTL. L.J. 661, 684 n.122 (1995) (discussing proposed settlement regarding spotted owl habitat with Anderson & Middleton Logging Co.).

³⁰² Thompson, *supra* note 99, at 325–26.

³⁰³ *Id.* at 336. According to Thompson, "FWS personnel recognize that property owners will have difficulty getting to court prior to exhausting the HCP [habitat conservation plan] process and assume that the government will withstand takings challenges if it permits a landowner at least some use of his property." *Id.*

³⁰⁴ *Id.* at 337.

³⁰⁵ Brown & Shogren, *supra* note 104, at 6.

priced, and the existing statutory structure does not provide for such flexibility. Requiring compensation and enabling agencies to consider alternatives to land use controls could improve upon this situation.

B. Political Support and Willingness to List

The incentives faced by government agencies may further be influenced by the political responses of landowners affected by the adoption and enforcement of uncompensated land use controls.³⁰⁶ The threat of uncompensated takings may cause political opposition and other interventions designed to prevent or delay government action that could lead to substantial economic losses.³⁰⁷ Insofar as this results in less regulation, it will result in less than optimal environmental protection, particularly if the decline in regulation is not balanced by increases in other conservation efforts. It also poses the risk that conservation policy itself will be associated with uncompensated losses, generating opposition to environmental goals, and not simply the inequitable means used to achieve them.³⁰⁸ Providing compensation, on the other hand, may reduce political and other opposition to valuable conservation measures.³⁰⁹

Where government action has the potential to impose sizable economic costs on private landowners, it will generate a political response.³¹⁰ In some cases, this response focuses on requiring compensation for landowners who are injured by regulation.³¹¹ Congress considered several takings compensation proposals in the late 1990s, and several states have passed takings bills of one sort or another, but

³⁰⁶ See *infra* notes 307–336 and accompanying text.

³⁰⁷ See Thompson, *supra* note 99, at 349–50.

³⁰⁸ Morrow, *supra* note 3, at 185 (suggesting “‘rural anti-environmentalism’ is not an inherent cultural belief but a natural, and possibly unavoidable response to the current regulatory framework”); see *id.* at 227–30; see also Thomas D. Feldman & Andrew E.G. Jonas, *Sage Scrub Revolution? Property Rights, Political Fragmentation, and Conservation Planning in Southern California Under the Federal Endangered Species Act*, 90 ANNALS ASS’N AM. GEOGRAPHERS 256, 271 (2000) (reporting that “the introduction of interim land use controls under the ESA polarized attitudes toward property regulation, endangered species, and conservation planning in western Riverside County”).

³⁰⁹ Brennan & Boyd, *supra* note 281, at 200 (“If property owners have considerable influence relative to environmental interests, commitments to substantial compensation payments can defuse landowner opposition to environmental regulation, which in turn leads to more efficient regulatory choices.”).

³¹⁰ Thompson, *supra* note 99, at 349 (“As generally will occur where property owners are threatened by sizable regulatory losses, a minimal compensation rule encourages societally inefficient investment in political opposition.”).

³¹¹ *Id.* at 350 (“Faced by the risk of uncompensated loss, property holders lobby the legislature to weaken proposed laws or provide compensation.”).

few require compensation for environmental land use controls.³¹² Insofar as efforts to mandate compensation have failed, political efforts have turned to focus on the regulatory process itself.³¹³

Under the ESA, various interest groups seek to manipulate the listing process so as to trigger or preempt the imposition of land use restrictions.³¹⁴ More specifically, property owners who own potential habitat for a given species are likely to oppose listing of the species so as to prevent regulation of their land.³¹⁵ The chief reason for focusing on the listing process is that once a species is listed as endangered, restrictions on habitat modification and other activities that could harm the species are automatic.³¹⁶ Species listing decisions are supposed to be based upon a conclusion that the best available scientific evidence suggests a species is endangered.³¹⁷ In fact, as Professors Polasky and Doremus note, the relevant statutory provisions do "not require or even permit cost-benefit comparison; activities which take listed species are prohibited no matter what their economic benefits"³¹⁸ Thus, the statute's structure increases the pressure to influence the listing process, as this is the primary means to influence whether the government will regulate private land.³¹⁹ Those who have studied the listing process have suggested that at least some of these efforts have succeeded: "[w]here the listing of a species is likely to impose large costs on prop-

³¹² See *supra* note 9 (citing legislative initiatives).

³¹³ See *infra* notes 314–332 and accompanying text.

³¹⁴ Epstein, *supra* note 34, at 34 ("[D]esignation systems have two substantial costs: one is destruction before designation, and the other is the use of the political process to deny, delay or deflect the designations that might come.").

Environmental groups have acknowledged that some species listings are sought out of a desire to control land use. For example, Andy Stahl of the Sierra Club Legal Defense Fund acknowledged that "the ultimate goal" of litigation to list the northern spotted owl was "to delay the harvest of old growth forests so as to give Congress a chance to provide specific statutory protection for those forests." Sugg, *supra* note 230, at 53. According to Stahl, the owl was a "surrogate" that could ensure "protection for the forests" under the ESA. See Sugg, *supra* note 230, at 53.

³¹⁵ Thompson, *supra* note 99, at 350.

³¹⁶ See Jon A. Souder, *Chasing Armadillos Down Yellow Lines: Economics in the Endangered Species Act*, 33 NAT. RESOURCES. J. 1095, 1137 (1993) (noting that opposition to the listing process occurs because "most of the costs of endangered species protection result from the initial listing of the species, where no economic balancing is applied").

³¹⁷ See 16 U.S.C. § 1533(b)(1)(A) (2000 & Supp. IV 2004).

³¹⁸ Polasky & Doremus, *supra* note 6, at 24.

³¹⁹ Yet, as discussed above, increasing regulatory stringency does not necessarily improve or increase conservation on private land. See *supra* notes 71–305 and accompanying text.

erty owners . . . political and legal pressures from landowners often delay the listing or, in isolated cases, even derail it."³²⁰

Political considerations undoubtedly affect ESA enforcement and implementation as well. Theoretically, listing decisions are made purely on the basis of the "best scientific evidence available," and political considerations do not intrude.³²¹ In practice, however, political costs and benefits have an effect. Large charismatic species, for example, are more likely to be listed than less attractive animal species that do not have the same political constituency.³²² Interest group activity also appears to influence how quickly species move through the ESA listing process.³²³ At the extreme, this has produced incentives to manipulate the scientific evidence supporting species listing.³²⁴ Economist Amy Ando has observed that "although the FWS does not answer directly to the public, the timing of at least some of its decisions does respond to pressure originating from those who bear the costs and benefits associated with its actions."³²⁵ Similarly, the regulated community has often sought to modify implementation of federal wetland regulations due to the costs such regulations can impose, and such efforts appear to influence the regulatory behavior of the Army Corps of Engineers.³²⁶

Delay in the listing of a species can benefit those landowners and economic interests that would have borne the costs of the ESA's regula-

³²⁰ Thompson, *supra* note 3, at 269. Empirical research has found that interest group opposition to species listing proposals increase as listings threaten development. See Amy Whritenour Ando, *Economies of Scope in Endangered-Species Protection: Evidence from Interest Group Behavior*, 41 J. ENVTL. ECON. & MGMT. 312, 329 (2001); see also Amy Whritenour Ando, *Do Interest Groups Compete? An Application to Endangered Species*, 114 PUB. CHOICE 137, 137 (2003) (finding interest group involvement in species listings increases with the expected costs and benefits of such listings).

³²¹ See 16 U.S.C. § 1533(b)(1)(A).

³²² See, e.g., Kerkvliet & Langpap, *supra* note 231, at 502; Andrew Metrick & Martin L. Weitzman, *Patterns of Behavior in Endangered Species Preservation*, 72 LAND ECON. 1, 14-15 (1996); Don L. Coursey, *The Revealed Demand for a Public Good: Evidence from Endangered and Threatened Species* 14 (Univ. of Chi., Working Paper No. 94.214, 1994), available at http://harrisschool.uchicago.edu/About/publications/working-papers/pdf/wp_94_2.pdf.

³²³ Amy Whritenour Ando, *Waiting to Be Protected Under the Endangered Species Act: The Political Economy of Regulatory Delay*, 42 J.L. & ECON. 29, 52 (1999).

³²⁴ For a recent example of such manipulation see Juliet Eilperin, *Report Faults Interior Appointee; Landowner Issues Trumped Animal Protections, IG Says*, WASH. POST., Mar. 30, 2007, at A05 (stating that senior Bush Administration official altered scientific field reports to minimize protections for imperiled species).

³²⁵ Ando, *supra* note 323, at 30.

³²⁶ See, e.g., Michael J. Mortimer, *Irregular Regulation Under Section 404 of the Clean Water Act: Is the Congress or the Army Corps of Engineers to Blame?*, 13 J. ENVTL. L. & LITIG. 445, 464-68 (1998).

tory limitations. At the same time, it can be harmful to conservation.³²⁷ Delay in listing a species increases the opportunity for landowners to respond to the perverse incentives created by the ESA.³²⁸ It also deprives conservation-minded landowners and others of the information that a given species is in need of assistance if it is to survive.

Not only may delay allow for the preemptive destruction of habitat, but it also may enable those in the regulated community to marshal scientific evidence that may suggest the listing is unwarranted.³²⁹ As a listing is delayed, there is a possibility that the scientific data upon which the potential listing was based could become outdated.³³⁰ Empirical research confirms that the longer it takes for a species listing to be proposed, its chances for eventual listing appear to decline.³³¹ If listing is the first step toward a species' recovery, political opposition to listing is environmentally worrisome.³³²

Theoretically, those property owners negatively affected by federal land use controls could form interest groups to protect themselves from costly land use regulations. This may be true for some large landowners who are part of industry groups that have found ways to accommodate the costs of regulation, but less so with smaller landowners.³³³ Even at the height of property rights activism in the 1990s, property rights organizations were never major players in the political process.³³⁴ Further,

³²⁷ Ando, *supra* note 323, at 34 ("Long delay in the addition of a species to the endangered species list can reduce the likelihood that the species will escape extinction; species have even been thought to have become extinct while waiting for final action from the agency. Thus, delay diminishes the benefits of a listing. It also reduces the costs."). But see Joe R. Kerkvliet & Christian Langpap, Success or Failure: Measuring the Effectiveness of the Endangered Species Act 1 (Oct. 2002), available at <http://ssrn.com/abstract=358720> (finding species listing does not correlate with recovery).

³²⁸ Ando, *supra* note 323, at 36 ("[D]elay can enable private citizens and firms to take preemptive irreversible actions (harvesting trees, developing land) on the land that will be protected once the listing is made.").

³²⁹ See *id.* (noting that "[t]iming may also influence outcome" because "delay in the early stages of the process probably makes it more likely that a candidate species is sent back in the process rather than being moved forward toward listing").

³³⁰ *Id.*

³³¹ *Id.* at 45.

³³² Thompson, *supra* note 99, at 350. But see Kerkvliet & Langpap, *supra* note 327, at 1 (finding species listing does not correlate with recovery).

³³³ See Heyman, *supra* note 9, at 166 (noting larger developers have an easier time complying with habitat conservation requirements than do smaller landowners). More generally, there is evidence that environmental regulations can impose disproportionate costs on smaller firms. See, e.g., B. Peter Pashigian, *The Effect of Environmental Regulation on Optimal Plant Size and Factor Shares*, 27 J.L. & ECON. 1, 16 (1984).

³³⁴ Writer David Helvarg, who is harshly critical of property rights groups, reported that "[r]eviews of IRS filings confirm that most of the established [property rights and wise use]

victims of government takings are unlikely to be adequately represented in the political process because they are unlikely to be repeat political players, and are therefore less likely to form influential interest groups.³³⁵ The exception to this is large landowners who face the risk of multiple takings and who are more capable of addressing this threat by spreading the risk across larger land holdings. Those landowners with disproportionate political strength may find means of avoiding government impositions on their land, whether or not compensation is paid.³³⁶

IV. MONEY FOR SOMETHING—THE POTENTIAL BENEFITS OF COMPENSATION

The failure to account for incentives and other economic realities may explain some of the failings of current environmental policies. Uncompensated land use regulations, such as those imposed under section 9 of the ESA, create substantial incentives for landowners to destroy and degrade vital habitat for endangered species.³³⁷ There is also reason to believe that other similarly structured conservation programs, such as the wetlands program under CWA section 404, produce similar incentives, even if not to the same degree.³³⁸ The lack of a compensation requirement further induces agencies to adopt skewed pri-

groups . . . operate in the \$50,000 to \$500,000-a-year range." DAVID HELVARG, *THE WAR AGAINST THE GREENS* 123 (1994). By comparison, the combined budgets of the twelve largest U.S.-based environmental organizations was two billion dollars in 2003. Paul Driessen, *Insights Behind Kyoto*, CFACT, Dec. 16, 2004, available at http://www.cfact.org/site/view_article.asp?idarticle=644&idcategory=4.

³³⁵ See Saul Levmore, *Just Compensation and Just Politics*, 22 CONN. L. REV. 285, 306–07 (1990); see also Farber, *supra* note 287, at 290 ("All things being equal, it probably is still true that the dispossessed are disadvantaged by the one-shot nature of their involvement.").

³³⁶ See, e.g., Barton H. Thompson, Jr., *A Comment on Economic Analysis and Just Compensation*, 12 INT'L REV. L. & ECON. 141, 141 (1992) ("American political lore . . . is rife with stories of highways being rerouted or other public projects relocated in seemingly inefficient ways solely to avoid politically effective communities and landholders."); see also Nicole Stelle Garnett, *The Neglected Political Economy of Eminent Domain*, 105 MICH L. REV. 101, 238–43 (2006). It is also worth noting that some landowners benefit economically from the imposition of environmental land use controls. Timber giant Weyerhaeuser, for instance, benefited from ESA-induced limits on logging on federal lands that curtailed timber supply and drove up timber prices. See Bill Richards, *Owls, of All Things, Help Weyerhaeuser Cash in on Timber*, WALL ST. J., June 24, 1999, at A1 ("[L]ogging restrictions to protect the owl have put more than five million acres of federal timberland in the Pacific Northwest out of loggers' reach—and driven lumber prices through the roof. With huge stands of its own timber, Weyerhaeuser is reaping big money from its trees as it saws wood as fast as it can. Owl-driven profits enabled the company to earn \$86.6 million in the first quarter, up 81% from a year earlier.").

³³⁷ See *supra* notes 115–197 and accompanying text.

³³⁸ See *supra* notes 198–206 and accompanying text.

orities and overrely upon land use controls to achieve environmental objectives.³³⁹

A compensation requirement would lessen the perverse incentives created by existing environmental land use controls. First, compensation would reduce the incentives that discourage conservation on private land.³⁴⁰ Some scholars have argued that for government agencies, "the incentive effects of compensation are *only* desirable . . . to the extent that inefficient projects are deterred."³⁴¹ A compensation requirement, however, can also encourage government agencies to consider the most cost-effective means of implementing specific projects, help overcome the information problems faced by centralized government agencies, and improve transparency and accountability.³⁴² In this way, compensation may not *reduce* the amount of conservation activity as much as it could lead to more optimal conservation measures.

A. *From Conscription to Enlistment*

Providing compensation to landowners who are denied the productive use of their land by habitat conservation regulations would go a long way toward reducing the resentment and hostility many landowners feel toward endangered species.³⁴³ As Professor Thompson summarizes, "A system of complete compensation would reduce both political and economic investment by landowners. Property owners would have little incentive to oppose the ESA, prematurely develop their property, or otherwise destroy habitat."³⁴⁴ Fair market value compensation will often fail to compensate landowners for the subjective value they place on maintaining control over their own land. Nor will such compensation reflect the land's nonmarket value as species habitat. Nonetheless, compensation would make an important contribution to species conservation efforts.³⁴⁵

³³⁹ See *supra* notes 255–305 and accompanying text.

³⁴⁰ See *infra* notes 343–352 and accompanying text.

³⁴¹ Daniel A. Farber, *Economic Analysis and Just Compensation*, 12 INT'L REV. L. & ECON. 125, 129 (1992) (emphasis added).

³⁴² See *infra* notes 353–413 and accompanying text.

³⁴³ See Stroup, *supra* note 121, at 60 (stating that compensation would reduce the "incentive for covert habitat or animal destruction" and "make landowners much more amenable to cooperation").

³⁴⁴ Thompson, *supra* note 99, at 351–52.

³⁴⁵ See Zhang, *supra* note 171, at 163 ("Any attempt to make ESA more effective will have to accommodate the need of private landowners and provide them with positive incentives for endangered species conservation.").

If those who value the preservation of species habitat are required to pay for its protection—either through government compensation or voluntary private transactions—the incentive to destroy habitat, hide information about species populations, and oppose science-based listing decisions largely disappears.³⁴⁶ Moreover, the prospect of economic gain from the cost-effective provision of species habitat will direct private energies in more positive directions. Landowners respond to opportunities to maximize the economic value of their land. For example, IP Timberlands learned to manage their lands so as to maximize recreation revenue on timberlands during decades-long timber rotations.³⁴⁷ Similarly, habitat owners will learn to appreciate the economic—and perhaps even the ecological—value of their lands.³⁴⁸ One does not need to share the ecological values held by many Americans to recognize the potential to gain through meeting the demands that such values create. Some landowners undertake conservation efforts not because ecological conservation is an important value to them, but because it is an important value to others.³⁴⁹

Compensation can also help transform the relationship between the government and private landowners so as to encourage greater trust and openness in environmental policy. Many landowners are very willing to cooperate with conservation goals, so long as they are not forced to bear the lion's share of the cost.³⁵⁰ Many landowners are often naturally willing to learn about, and even enhance, the ecological value of their land. Again, however, this must be something for which they will not be punished economically. Providing compensation reduces the threat posed by scientific information about the location and status of endangered species.³⁵¹ Compensation can help encourage landowners to act as if motivated by a conservation ethic in part because it treats them as respected conservationists, as opposed to the government's

³⁴⁶ Epstein, *supra* note 34, at 35 ("[A] system of voluntary purchase or condemnation radically changes the incentives for both sides in the pre-designation period. In this new environment, it is to the advantage of an owner to bring valuable habitat to the attention of the government, and to take steps to preserve it in its ideal condition . . .").

³⁴⁷ TERRY L. ANDERSON & DONALD R. LEAL, *ENVIRO-CAPITALISTS: DOING GOOD WHILE DOING WELL* 4-8 (1997) (describing efforts to improve wildlife habitat and recreation opportunities on lands owned by International Paper); Holly Fretwell & Michael J. Podolsky, *A Strategy for Restoring America's National Parks*, 13 DUKE ENVTL. L. & POL'Y F. 143, 155-56 (2003) (same).

³⁴⁸ See ANDERSON & LEAL, *supra* note 152, at 4-8.

³⁴⁹ See generally ANDERSON & LEAL, *supra* note 347 (demonstrating how free market approaches and private entrepreneurs can contribute to environmental conservation).

³⁵⁰ See *supra* notes 121-129 and accompanying text.

³⁵¹ See *supra* notes 207-225 and accompanying text.

uncompensated conscripts. Indeed, the threat of uncompensated regulatory takings under existing environmental regulations increases the potential costs of inducing greater voluntary conservation on such lands.³⁵²

B. Cost-Effectiveness and Nonregulatory Approaches

The positive effect of a compensation requirement on the incentives faced by government agencies may be less obvious, but it is no less important than that for private landowners.³⁵³ As explained above, requiring compensation transforms private land from an off-budget acquisition to a conservation policy input that must be paid for like any other.³⁵⁴ If agencies have sufficient latitude to act upon the incentives this change creates—an assumption that does not always hold—they can consider the trade-offs inherent in developing conservation policy, and allocate scarce government resources so as to achieve the maximum return.³⁵⁵ Contrary to the claim of some compensation opponents, the result is less likely to reduce environmental conservation and more likely to enhance consideration of the relative cost-effectiveness of various strategies, ultimately leading to more optimal conservation policies.³⁵⁶ Federal agencies forced to face true budget constraints are

³⁵² Zhang, *supra* note 171, at 151 n.1 (noting that although "it might take giant incentives to overcome the threat of large and direct losses with the current command-and-control powers inherent in the current ESA programs . . . absent those draconian (potential rather than inevitable) penalties, small positive incentives might bring forth much habitat protection now being preemptively reduced or destroyed and habitat creation").

³⁵³ See Epstein, *supra* note 34, at 3 ("All relevant parties will operate under superior incentives if the government is required to pay compensation when it takes land for habitat preservation or restricts its ordinary use for the same purpose. The power to initiate changes must be offset by the willingness to bear the financial dislocations they induce.").

³⁵⁴ William A. Fischel & Perry Shapiro, *Takings, Insurance, and Michelman: Comments on Economic Interpretations of "Just Compensation" Law*, 17 J. LEGAL STUD. 269, 269-70 (1988) (stating that requiring compensation "serves the dual purpose of offering a substantial measure of protection to private entitlements, while disciplining the power of the state, which would otherwise overexpand unless made to pay for the resources that it consumes"); Innes, *supra* note 100, at 196 ("Compensation adds the private costs to the government's budget and thereby elicits more efficient government behavior.").

³⁵⁵ Cf. Richard A. Epstein, *In and Out of Public Solution: The Hidden Perils of Forced and Unforced Property Transfer*, in PROPERTY RIGHTS: COOPERATION, CONFLICT & LAW, *supra* note 98, at 307, 309 ("Constitutional guarantees of property rights do not negate the use of legislative power, but only strip away at its excesses. The acid test is whether these property-based guarantees improve the ratio of well-designed legislative actions to misguided ones.").

³⁵⁶ See Elliott, *supra* note 57, at 1180-81 ("If government must pay for the cost of property made valueless by regulation, it has an incentive to regulate more efficiently by looking for regulatory investments that create benefits greater than the costs they incur.").

more likely to optimize their function by devoting resources to their best uses.

There are always trade-offs when government agencies devote greater resources to one matter over another. For example, the traditional emphasis on enforcement at the U.S. Environmental Protection Agency came at the expense of scientific and technical research, policy development, and other agency priorities.³⁵⁷ Just as the aim of pollution control can sometimes be advanced by substituting compliance assurance and technical assistance for greater enforcement efforts, shifting resources from land use control to other policy initiatives could yield greater environmental returns.

One of the problems of current conservation policy is that agencies act as if such trade-offs do not exist because they do not bear the full costs of certain policy measures.³⁵⁸ If the ESA is failing to save species, this may be because the statute does not require government to account for the fundamental economic issues of scarcity and opportunity cost.³⁵⁹ Instead, the statute facilitates greater land use control,³⁶⁰ yet it is not always to the benefit of environmental conservation. Indeed, the ESA has not been particularly effective, so reducing governmental appetite for additional land use restrictions should not be presumed to compromise conservation.³⁶¹

As William Fischel observes, a compensation rule "gives the government a choice. It can continue the regulation if it values it above the market price."³⁶² If not, it may devote the relevant resources to some other goal. If agencies are allowed some discretion in the selection of means to achieve statutory goals, a compensation rule also places land use control on the same plane as other conservation tools. Thus, the costs and benefits of each option may be evaluated, and the agency may adopt the most cost-effective combination of measures.

Federal officials argue that proposals to fund payment out of individual agency budgets are "clearly intended to punish a federal agency for any action that would inconvenience any property owner to the

³⁵⁷ See MARC K. LANDY ET AL., *THE ENVIRONMENTAL PROTECTION AGENCY: ASKING THE WRONG QUESTIONS FROM NIXON TO CLINTON* 36 (expanded ed. 1994).

³⁵⁸ See *supra* notes 255–305 and accompanying text.

³⁵⁹ Morriss & Stroup, *supra* note 251, at 787.

³⁶⁰ See Epstein, *supra* note 34, at 25 (explaining that in the case of one imperiled species "the government over a 25-year period spent \$253,900,000 to purchase about 360,000 acres of land for critical habitat. Yet a single designation for the coastal California gnat-catcher brought 3.8 million acres of coastal scrub habitat beneath the jurisdiction of the FWS.").

³⁶¹ See *supra* notes 226–243 and accompanying text.

³⁶² FISCHEL, *supra* note 96, at 364.

slightest degree.”³⁶³ Yet the aim is not to “punish” federal officials so much as to discipline them, and force them to recognize the trade-offs and the social costs of their decisions. In testimony before the U.S. House of Representatives in 1999, then-FWS Director Jamie Rappaport Clark reported that, “Taxpayer money spent on compensation for legally required agency actions is money not spent on protection and recovering the species needing the protections of the ESA.”³⁶⁴ This is precisely the point. Requiring agency expenditures to be on-budget forces agencies to report on the true costs of their regulatory actions and to acknowledge the trade-offs their policy decisions impose.

Opponents of takings compensation fear that a compensation requirement would produce the de facto repeal of existing environmental laws.³⁶⁵ In the context of court judgments awarding compensation under a constitutional standard, they warn that “judicial decisions that find permit denials constitute takings may alter agency behavior. . . . As large takings judgments mount, agencies will become reluctant to engage in strict enforcement of laws and regulations”³⁶⁶

As a theoretical matter, where the imposition of land use controls is economically efficient, compensation is not an obstacle to sound policy, as the “losing” landowners can be compensated out of the surplus.³⁶⁷ As a practical matter, given sufficient statutory flexibility, agencies could enhance landowner participation in easement acquisition and voluntary

³⁶³ Charles Tiefer, *Controlling Federal Agencies by Claims on Their Appropriations? The Takings Bill and the Power of the Purse*, 13 YALE J. ON REG. 501, 511 (1996) (quoting Lance Wood of the Army Corps of Engineers).

³⁶⁴ *To Ensure That Landowners Receive Equal Treatment to That Provided to the Federal Government When Property Must Be Used: Hearing on HR 1142 Before the House Comm. on Resources*, 106th Cong. 40 (1999) (testimony of Jamie Rappaport Clark, Director, U.S. Fish and Wildlife Service).

³⁶⁵ See William & Mary Symposium, *supra* note 87, at 779 (comments of John Kostyack) (arguing that a compensation requirement would make section 9 of the ESA “unenforceable”). It should be noted that if a compensation requirement would be so expensive as to render existing land use regulations “unenforceable,” it cannot also be the case that such regulations have minimal impacts on landowners, as some have claimed. See Ely, *supra* note 57, at 55 (“[E]nvironmentalists insist that situations in which regulation of landowners is so severe as to pose a takings question are unusual. If that is so, claims of potentially massive costs are wildly exaggerated.”); Kostyack, *supra* note 143.

³⁶⁶ Royal C. Gardner, *Banking on Entrepreneurs: Wetlands, Mitigation Banking, and Takings*, 81 IOWA L. REV. 527, 543 (1996); see also *id.* at 547 (“[T]hese takings cases endanger wetland regulatory programs, because adverse decisions may discourage agencies from strictly enforcing wetland laws and regulations.”); Sugameli, *supra* note 57, at 580 (stating that compensation requirements “provide a powerful incentive for agencies to grant permits that will harm the health, safety and property of neighbors” rather than risk a negative court judgment).

³⁶⁷ See Fischel, *supra* note 98, at 352–53.

conservation programs, thus reducing the need for compensation payments under a regulatory approach.³⁶⁸

The potential to substitute government land use control with more effective conservation strategies can readily be seen in the context of wetlands regulation. The costs imposed by the section 404 permitting scheme are far greater than the costs of various other wetland conservation and restoration efforts engaged in by both government and private actors. As recent analyses demonstrate, "Federal regulation of wetlands can be enormously expensive when considered in terms of total economic impacts per acre of wetlands conserved."³⁶⁹ In some instances, the total economic losses imposed by federal wetland regulation can reach \$1 million per acre.³⁷⁰ Yet this is only part of the picture. As Economist David Sunding has explained, "Traditional measures of the cost of regulation, namely out-of-pocket cost of obtaining a permit and performing mitigation," dramatically understate the total economic costs of wetland regulations.³⁷¹ Additionally, there is little evidence that wetland regulators account for the ecological functions provided by given wetlands when making permitting decisions.³⁷² Thus, insofar as the nation has approached, or even achieved, the Clean Water Act's stated goal of "no net loss" of wetlands, it does not appear to be the result of increased regulatory stringency.³⁷³

³⁶⁸ See, e.g., Steven D. Shultz, *Evaluating the Acceptance of Wetland Easement Conservation Offers*, 27 REV. AGRIC. ECON. 259, 259 (2005) (finding a fifty-six percent acceptance rate of wetland easement offers by FWS to North Dakota landowners and suggesting ways to further improve acceptance); see also Ely, *supra* note 57, at 55–56 (discussing incentive based conservation programs in Tasmania).

³⁶⁹ David Sunding, *An Opening for Meaningful Reform?*, REGULATION, Summer 2003, at 30, 31.

³⁷⁰ *Id.* at 32.

³⁷¹ *Id.*

³⁷² David Sunding & David Zilberman, *The Economics of Environmental Regulation by Licensing: An Assessment of Recent Changes to the Wetland Permitting Process*, 42 NAT. RESOURCES J. 59, 86 (2002); Mortimer, *supra* note 326, at 460–64.

³⁷³ See ENVTL. PROT. AGENCY & DEP'T OF THE ARMY, MEMORANDUM OF AGREEMENT BETWEEN THE DEPARTMENT OF THE ARMY AND THE ENVIRONMENTAL PROTECTION AGENCY CONCERNING THE DETERMINATION OF MITIGATION UNDER THE CLEAN WATER ACT SECTION 404(B)(1) GUIDELINES (1990), available at <http://www.epa.gov/owow/wetlands/regs/mitigate.html> (establishing the "no net loss" goal pursuant to 33 U.S.C. § 1344); Sunding & Zilberman, *supra* note 372, at 72. For more on whether "no net loss" of wetlands was achieved in the 1990s, see Jonathan H. Adler, *Wetlands, Waterfowl, and the Menace of Mr. Wilson: Commerce Clause Jurisprudence and the Limits of Federal Wetland Regulation*, 29 ENVTL. L. 1, 63–66 (1999). Of course, there is reason to question whether "no net loss" is the appropriate policy goal, as it focuses on a quantitative measure—net changes in wetland acreage—rather than a qualitative goal, such as the provision of particular ecological services.

Nonregulatory wetland conservation programs look like a bargain when compared to available regulatory alternatives. Wetland conservation through the purchase of easements or other partial interests in land is significantly less expensive than the total costs of conserving wetlands through section 404, and the "restoration of wetlands is usually much less expensive than conservation."³⁷⁴ Furthermore, in some cases, programs to promote the adoption of conservation practices on working land will be more cost-effective than land acquisition or retirement programs, even if the overall conservation benefits seem smaller.³⁷⁵ U.S. Department of Agriculture ("USDA") programs that restore and conserve wetlands by obtaining a partial interest in land cost an average of \$1300 per acre.³⁷⁶ The USDA Wetlands Reserve Program is even more cost-effective, restoring wetlands at approximately \$600 per acre.³⁷⁷ The North American Waterfowl Management Plan—a voluntary partnership program administered by the FWS—has conserved or restored an estimated three million acres of waterfowl habitat at a cost of approximately \$230 per acre.³⁷⁸ Another voluntary program run by FWS, Partners for Wildlife, has likewise funded the restoration of over 300,000 acres of wetland habitat and 350 miles of riparian habitat at a cost as low as \$100 per acre or less.³⁷⁹ Compared to existing regulatory programs, these approaches seem quite cost-effective—and are far less controversial.³⁸⁰

There is reason to believe that there is an equivalent range in the cost-effectiveness of various species conservation measures. There are many different mechanisms short of outright acquisition that can be used to encourage or ensure species conservation on private land.³⁸¹ Some studies indicate that voluntary conservation agreements can

³⁷⁴ Sunding & Zilberman, *supra* note 372, at 84.

³⁷⁵ Hongli Feng et al., *Environmental Conservation in Agriculture: Land Retirement vs. Changing Practices on Working Land*, 52 J. ENVTL. ECON. & MGMT. 600, 601 (2004).

³⁷⁶ Sunding, *supra* note 369, at 34.

³⁷⁷ *Id.*

³⁷⁸ Turner & Rylander, *supra* note 6, at 124.

³⁷⁹ *Id.* at 126.

³⁸⁰ Privately funded conservation efforts, dollar-for-dollar, appear to be even more cost-effective. This should not be surprising. As Professor David Sunding explains: "[T]he Corps is not forced to pay attention to factor prices. Private groups have better incentives to target the land with the highest level of environmental amenities per dollar spent." Sunding, *supra* note 369, at 35.

It should also be noted that landowner willingness to participate in various conservation programs is in part a function of commodity prices. See Shultz, *supra* note 368, at 260. As a consequence, federal policies that increase commodity prices can be expected to undermine nonregulatory conservation efforts. See *id.*

³⁸¹ Main et al., *supra* note 119, at 1267–68.

achieve many of the results of more permanent measures at a fraction of the cost.³⁸² The cost of a conservation easement can be as little as thirty percent of the cost of acquiring a fee simple interest in land.³⁸³ Furthermore, land parcels, and their ecological functions, vary greatly from place to place.³⁸⁴ Not every acre of habitat for a given species will provide the same level of ecosystem services, and therefore not every acre should be valued the same. Faced with budget constraints, agencies will have a greater incentive to consider which acres are most important to conserve, and can increase the conservation returns of their investment. A study by Economist Jason Shogren et al. reports that "[b]y taking into account that land values vary across the United States instead of treating land as homogenous, the costs of protecting half the species on the list can be cut by two-thirds."³⁸⁵

The existence of compensation and the consideration of nonregulatory conservation initiatives may also lower the costs of such efforts insofar as they facilitate voluntary landowner cooperation.³⁸⁶ At some level, the precise response of individual agencies is difficult to predict.³⁸⁷ However, as Professor Thompson has noted, "What one can conclude, with a reasonable degree of confidence, is that broader compensation would lead to a more efficient *balance* among the resources devoted to species protection and recovery."³⁸⁸

There are many different tools available for the promotion of conservation objectives, yet federal policy does not reflect any deliberate plan as to the ideal mix of such tools.³⁸⁹ Although rarely relied upon by

³⁸² *Id.* at 1270.

³⁸³ Mark L. Shaffer et al., *Noah's Options: Initial Cost Estimates of a National System of Habitat Conservation Areas in the United States*, 52 *BIOSCIENCE* 439, 441 (2002).

³⁸⁴ See Elmendorf, *supra* note 212, at 428 ("Land is not created equal. From an environmental perspective, some areas count more than others."); Jonathan Remy Nash, *Trading Species: A New Direction for Habitat Trading Programs*, 32 *COLUM. J. ENVTL. L.* 1, 2 (2007) (noting that not all habitat for a given species will be equally valuable for conservation of that species).

³⁸⁵ Shogren et al., *supra* note 213, at 1259.

³⁸⁶ See Morrow, *supra* note 3, at 229 (noting rancher willingness to cooperate with "bottom-up" conservation efforts); Salzman, *supra* note 219, at 896 (noting that encouraging landowner participation in conservation programs may cost less than estimated). *But see id.* at 956 (noting that some landowners may be suspicious of government incentive payments, fearing that incentive are a precursor to regulation).

³⁸⁷ Thompson, *supra* note 99, at 366 ("By lowering or removing property owner opposition, increased compensation might well free Congress and the FWS to pursue greater habitat regulation.").

³⁸⁸ *Id.*

³⁸⁹ Thompson, *supra* note 3, at 246 ("The federal government did not consciously plan the current mix of regulation, governmental acquisition, grants, and tax incentives. Nor

regulatory agencies, a recent review of nonregulatory alternatives has noted that "voluntary mechanisms (such as fee simple purchase, easements, conservation banking, and subsidies) are an effective and flexible method for targeting low-cost land with high-quality habitat."³⁹⁰ In addition to various federal incentive programs, there are an estimated *four hundred* state incentive programs covering approximately seventy million acres of private land.³⁹¹ These programs range from financial incentives and easement purchases to education and technical assistance of various sorts.³⁹²

Requiring compensation, by itself, is not sufficient to encourage more efficient regulatory action if the agency itself is not liable for compensation.³⁹³ As Professors Vicki Been and Joel Beauvais note, "Because politicians and bureaucrats do not maximize profits, having to expend funds to cover a compensation award will not necessarily have any effect on their decision, unless those expenditures make it harder for the decisionmaker to achieve whatever it is trying to maximize."³⁹⁴ This means agencies must themselves bear the costs of their decisions.

At present, the federal government pays court-awarded takings compensation claims out of the federal "judgment fund," rather than out of specific agency appropriations or land-acquisition funds.³⁹⁵ As a consequence, when compensation is required under the current system, it does not affect agency operations.³⁹⁶ This approach enables agencies to implement their environmental programs without any meaningful consideration of the costs imposed on landowners or the

has Congress or the executive branch ever thought carefully about the ideal mix of conservation tools. Little, if any, thought has been given to the advantages and disadvantages of each approach, the most appropriate setting in which to use each method, or the extent to which the current approaches reinforces or undermines each other.").

³⁹⁰ Gregory M. Parkhurst & Jason F. Shogren, *An Economic Review of Incentive Mechanisms to Protect Species on Private Lands*, in SPECIES AT RISK: USING ECONOMIC INCENTIVES TO SHELTER ENDANGERED SPECIES ON PRIVATE LANDS 65, 121 (Jason F. Shogren ed., 2005).

³⁹¹ See Jason F. Shogren, *Introduction*, in SPECIES AT RISK: USING ECONOMIC INCENTIVES TO SHELTER ENDANGERED SPECIES ON PRIVATE LANDS, *supra* note 390, at 1, 10.

³⁹² *Id.*

³⁹³ Daryl Levinson notes that "if the compensation is paid out of a general fund, then [regulators] will be indifferent as to the takings price of land." Levinson, *supra* note 247, at 382 n.106.

³⁹⁴ Been & Beauvais, *supra* note 283, at 92.

³⁹⁵ Tiefer, *supra* note 363, at 505; *cf. id.* at 506 ("By contrast, Congress funds condemnations through annual appropriations. Typically, it funds large-scale condemnations, such as the acquisition of land to expand a national park or forest, through a separate appropriation dedicated largely or wholly to that kind of object.").

³⁹⁶ *Id.* at 512 (noting that the current system "completely insulate[s] agencies from the fiscal impact of constitutional takings suits").

cost-effectiveness of alternative conservation strategies. Alternatively, financing judgments from agency budgets would affect policy choices, in particular because money spent on takings claims could not be spent elsewhere.³⁹⁷

If conservation agencies are required to pay compensation, and face meaningful budget constraints, they will seek lower-cost means of achieving their conservation objectives. At the same time, private land-owners will have greater incentives to find ways of providing conservation benefits at a cost government can afford.³⁹⁸ As in private markets, there are potential economic rewards for environmental entrepreneurs who uncover means of providing better services at a lower cost. This encourages an organic market-driven discovery process that leads to greater innovation and cost-effective means of achieving societal goals.

Critics of a compensation requirement are correct that a regulator "may pay little attention to a compensation award unless having to pay compensation to property owners makes it harder for the decision-maker to achieve whatever he or she is trying to maximize."³⁹⁹ This is precisely why allowing mandated compensation to be paid from a separate account, such as the federal judgment fund, is insufficient.⁴⁰⁰ It also points to the need for a compensation requirement to be paired with programmatic reforms that ensure conservation agencies have the freedom and discretion to make policy trade-offs and substitute other conservation measures for compensated land use controls.⁴⁰¹ If compensation is required *and* if agencies are in position to evaluate alternatives to regulation, there is the potential for improved priority-setting and greater adoption of more optimal conservation strategies.

C. Transparency and Accountability

Compensation paid directly from the relevant agency's budget would be likely to have several political effects. First, it would reduce political opposition to government conservation actions, such as the

³⁹⁷ *Id.* at 516 (explaining that "the charging of agency appropriations for such claims radically alters the politics of controlling agency operations . . . [and] affects the amount of funds left over for other objects of funding"). In theory, if an agency were consistently to lose takings suits that were paid out of the Justice Department's judgment fund, it is conceivable that Congress would respond in a way that is adverse to the agency. In practice, however, there is little evidence of this. In any event, such responses are unlikely to provide much discipline insofar as they are so indirect.

³⁹⁸ Stroup, *supra* note 121, at 60.

³⁹⁹ Been, *supra* note 65, at 248.

⁴⁰⁰ See *supra* notes 395–397 and accompanying text.

⁴⁰¹ See *supra* note 305 and accompanying text.

listing of endangered species or the adoption of more expansive definitions of wetlands and valuable ecosystems.⁴⁰² Second, and perhaps more important, it would encourage a greater consideration of trade-offs and cost-effectiveness in agency decision making.⁴⁰³ Further, a compensation requirement can increase transparency in agency decision making and improve public accountability.⁴⁰⁴

Insofar as the costs of regulation are brought to bear in the policy-making process at present, it is only indirectly. Those burdened by such regulations may seek to intervene politically to alter agency priorities, but such intervention does not further the goal of efficient resource allocation nor does it support transparent evaluation of costs and benefits.⁴⁰⁵ Rather, it undermines the development of sound conservation policy.

Placing the full costs and benefits of conservation programs "on-budget" can facilitate the consideration of trade-offs within the budgetary and agency planning processes.⁴⁰⁶ Whatever the imperfections or pathologies of the existing appropriations process, it at least frames resource allocations as involving questions of trade-offs. Funds devoted to program A are not available for program B, and vice-versa. This furthers transparency and accountability in government decision making. Requiring compensation can even affect interest-group behavior and discipline the government tendency to prefer some constituencies over others.⁴⁰⁷ In contrast, as Professor Thompson explains, "regulatory programs generally eschew full consideration of costs, and thus the costs of regulatory programs are addressed in political skirmishes that occur behind closed doors rather than in an open, rational fashion."⁴⁰⁸

As James Q. Wilson has observed, it is often difficult to measure the effectiveness of government action: "Suppose a police officer walking a beat makes no arrest. That can mean either that no crime occurred or that the officer could solve none of the dozens of crimes that did in fact occur."⁴⁰⁹ By the same token, the actual environmental per-

⁴⁰² See *supra* notes 306–336 and accompanying text.

⁴⁰³ See *supra* notes 255–305 and accompanying text.

⁴⁰⁴ See *infra* notes 405–413 and accompanying text.

⁴⁰⁵ Thompson, *supra* note 3, at 289.

⁴⁰⁶ See *id.* ("Where the government directly finances the cost of conservation, it will generally engage in a reasoned, albeit political, balancing of the costs and benefits of various levels of conservation.").

⁴⁰⁷ See Ron Giammarino & Ed Nosal, *Loggers Versus Campers: Compensation for the Taking of Property Rights*, 21 J.L. ECON. & ORG. 136, 138 (2005).

⁴⁰⁸ Thompson, *supra* note 3, at 289–90.

⁴⁰⁹ WILSON, *supra* note 290, at 155.

formance of various conservation programs should not be measured by the number of enforcement actions, or even the amount of regulatory activity. What actually matters are the results on the ground: Are species being conserved? Are ecological resources protected? And so on. To the extent that agency policies are off-budget, it is more difficult to evaluate the effectiveness and efficiency of their various programs and weigh potential alternatives.⁴¹⁰ Without a consistent metric of costs, it is more difficult to ensure that any resources are allocated in a sensible fashion.

It is well understood that “[b]ureaucrats also tend to favor programs with visible benefits and invisible costs.”⁴¹¹ As Wilson notes, “There is a kind of Gresham’s Law at work in many government bureaus: Work that produces measurable outcomes tends to drive out work that produces unmeasurable outcomes.”⁴¹² This problem is magnified when landowners are not compensated when land use regulations reduce the potential uses of their land, and agencies can treat land use regulation as a free, off-budget factor input. As Professor Epstein states, a “compensation requirement forces the government and the public to make explicit trade-offs between different goods, in order to determine their value to the polity at large.”⁴¹³ With land conservation on-budget alongside other conservation tools, it would be easier for the public—and their political agents—to determine whether conservation agencies are acting in an effective and responsive manner.

CONCLUSION

Most environmental regulation proceeds from the assumption that government action is a necessary and appropriate response to the negative environmental consequences of private activities. If private economic activities create harmful effects on other persons and their properties, the reasoning goes, then government regulation is necessary to limit such harms. In economic terms, government action is nec-

⁴¹⁰ For this reason, many policy analysts recommend the adoption of a “regulatory budget” to help keep track of regulatory costs. See Robert W. Hahn, *Achieving Real Regulatory Reform*, 1997 U. CHI. LEGAL F. 143, 152 (advocating use of a regulatory budget); Samuel Hughes, *Regulatory Budgeting*, 31 POL’Y SCI. 247, 248 (1998); Harvey S. James, Jr., *Implementing a Regulatory Budget: Estimating the Mandated Private Expenditure of the Clean Air Act and Safe Drinking Water Act Amendments*, 31 POL’Y SCI. 279, 279 (1998); Fred Thompson, *Toward a Regulatory Budget*, 17 PUB. BUDGETING & FIN. 89, 89 (1997).

⁴¹¹ Michael Copeland, *The New Resource Economics*, in THE YELLOWSTONE PRIMER 13, 18 (John A. Baden & Donald Leal eds., 1990).

⁴¹² WILSON, *supra* note 290, at 161.

⁴¹³ Epstein, *supra* note 34, at 37.

essary to control or "internalize" the externalities associated with private land use. In the language of the common law, the government should prohibit those activities that constitute a trespass or nuisance to private or public rights.

In the pollution context, this conventional reasoning is straightforward. Since the earliest days of the common law, it has been understood that a property owner's right to use his or her land extends only to a point where such use infringes upon a neighbor's equivalent right. In modern environmental law, however, government regulation is expected to control private land uses that do not impose harms on neighboring properties. The regulated activities may undermine the provision of public goods—such as species habitat or ecosystem services—or transgress commonly held environmental preferences. Regulating private land use on such a basis results in far more extensive regulation of private land use than traditional rationales for government intervention would have contemplated.

An additional, unstated premise of much contemporary environmental regulation is that government intervention is an effective means of addressing environmental concerns. Upon identifying an externality or alleged "market failure," policymakers routinely jump to the conclusion that government regulation or some other intervention is warranted, without first considering whether such action will be effective or whether it represents an improvement over the *status quo ante*. As a consequence, much environmental regulation has been adopted with insufficient attention to its consequences and potential alternatives.

This Article demonstrates that there are serious negative environmental consequences to certain land conservation measures, particularly those that regulate private land use in an effort to ensure the adequate provision of species habitat. The costly nature of contemporary land use controls, such as those imposed under section 9 of the ESA, combined with the lack of compensation for those landowners who find their property rights effectively redefined by government edict, has made these measures particularly ineffective at achieving their stated environmental goals. In the context of habitat conservation under the ESA, economic theory and increasing empirical evidence suggest that, at least in the context of private land, land use regulations are likely doing more harm than good.

Providing compensation for private landowners whose rights to make productive use of their land are restrained by nonnuisance-related environmental land use controls has several potential environmental benefits. First, at least in the context of the ESA, providing compensation could significantly reduce the perverse incentives landowners have

to destroy habitat, refrain from habitat creation, and refuse to cooperate with scientific research about the condition of imperiled species. Second, a compensation requirement can facilitate greater consideration of which environmental conservation measures will be most cost effective. If agencies are forced to pay for the acquisition or extinguishment of traditional land use rights, the costs of these actions may be compared with available alternatives, ranging from the voluntary acquisition of easements to conservation incentives to the direct subsidization of conservation and ecological restoration activities. This has the potential to improve internal agency decision making, enhance agency accountability, and facilitate greater public participation in relevant environmental policy decisions. More broadly, a legal regime that provides greater protection for property rights will create a stronger institutional framework for the pursuit of environmental and other social goals.⁴¹⁴

Compensation for regulatory takings is hardly a panacea to the ails of environmental protection. Many environmental programs are failing, either because they have become outdated or because they were never particularly effective.⁴¹⁵ Partisan politics and the demands of political organization further hamper the creation and implementation of effective environmental policy. Too often, public attention and governmental efforts focus on relatively insignificant environmental risks while serious ecological problems languish in the background.⁴¹⁶

Solving the environmental challenges of the twentieth century—let alone beginning to address the environmental problems of the

⁴¹⁴ See generally Louis De Alessi, *Gains from Private Property: The Empirical Evidence*, in PROPERTY RIGHTS: COOPERATION, CONFLICT & LAW, *supra* note 98, at 90, 108 ("The evidence in this chapter suggests that individual or communal property rights promote investment in maintaining and improving resources, development of new institutions and technologies, and faster, fuller response to changes in circumstances."); Seth W. Norton, *Property Rights, the Environment, and Economic Well-Being*, in WHO OWNS THE ENVIRONMENT? 37, 51 (Peter J. Hill & Roger E. Meiners eds., 1998) ("The data presented [in this chapter] show that environmental quality and economic growth rates are greater in regimes where property rights are well defined than in regimes where property rights are poorly defined.").

⁴¹⁵ See generally Jonathan H. Adler, *Free & Green: A New Approach to Environmental Protection*, 24 HARV. J.L. & PUB. POL'Y 653, 661–67 (2001).

⁴¹⁶ In some cases, regulations are not even focused on alleviating environmental risks as much as they are designed to benefit particular interest groups. See generally ENVIRONMENTAL POLITICS: PUBLIC COSTS, PRIVATE REWARDS (Michael S. Greve & Fred L. Smith, Jr. eds., 1992) (describing the influence of special interests on environmental policy); Jonathan H. Adler, *Clean Politics, Dirty Profits: Rent-Seeking Behind the Green Curtain*, in POLITICAL ENVIRONMENTALISM: GOING BEHIND THE GREEN CURTAIN 1, 1 (Terry L. Anderson ed., 2000) (same); Todd J. Zywicki, *Environmental Externalities and Political Externalities: The Political Economy of Environmental Regulation and Reform*, 73 TUL. L. REV. 845 (1999) (same).

twenty-first—requires a willingness to reconsider the presumptions and prejudices that have guided environmental policy to date. In this regard, it is time for environmental policy leaders to reconsider their opposition to compensating landowners for regulatory takings in environmental law. Such a policy is anything but “anti-environmental.” Indeed, for imperiled species and certain other ecological resources, it may be the most pro-environmental option on the table.